SENAI ELECTRICAL AND ELECTRONIC VOCATIONAL TRAINING CENTER PROJECT

EVALUATION REPORT

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produced by the Brazilian side

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PRESENTATION

This report is fruit of a joint study executed by the Brazilian and Japanese Governments, through the Brazilian Cooperation Agency - ABC and the Japanese International Cooperation Agency - JICA aiming at the identification of the results obtained and the problems occurred in the planning and implementation of Japanese cooperation projects in Brazil, besides the use of these results to subsidize future projects development between these two countries.

The technological Center of Electro-Electronics "César Rodrigues"- CETEL, implemented through the technical cooperation Brazil/Japan , was one of the projects chosen as the planned evaluation target.

In spite of the time passed between the development of the cooperation project and the current moment which the evaluation was executed, SENAI as JICA partner and responsible for the planning, implementation and working of CETEL, has promptly identified with the purpose of the work, by means of the opportunity of getting subsidy that could assign the planning of future actions from the Centre.

It's expected that the results that are registered here can contribute, in a decisive way, for the development of new Japanese technical cooperation projects in Brazil and that the richness of information available can contribute effectively in raising the quality of the service rendered by CETEL in favour of the graduation and development of human resources and the technological development in the Brazilian industrial sector.

1 - CETEL - RESULT OF PARTNERSHIP BRAZIL/JAPAN

Conceived as PJ ("Projeto Japão") - CETEL had its planning started by the end of the years 70, when then the industrial development process had already missing specialized manpower to attend upon the needs of electro-electronics sector.

After a negotiation period between SENAI and JICA an agreement of technical cooperation was signed on March 29th, 1979 forecasting the donation of equipments, technical assistance and know-how tranference by the Japanese side and with SENAI taking responsibility by the building construction, complementary equipments acquisition, arrangement of the human resources and the unit maintainance.

On April 6th, 1981 were officially implemented two programmed technical courses: Electric and Electronic Training Courses, pioneers till then.

During these thirteen years of running the center, 476 trainees have concluded the technical course, that has established nowadays in one of the Centre's action strategy to attend upon the needs of the electro-electronics industry, that according to data from the RAIS/MTB (Annual Report of Social Information - Ministry of Labour) numbered 790 enterprises in 1991 absorbing 11.360 employees in Minas Gerais.

The Centre's profile has been objective of a continual evolution, influenced by the quick changes proceeding from the external ambient causing the deactivation of the Electric Training Course - extinct in 1989 - and the emerging of others, as the Industrial Computer Science, besides the enlargement of the possibilities available by the CETEL nowadays.

Thanks to this capacity of adequacy, incorpored progressively to its routine, CETEL has been recognized as a Vocational Training Center model in Brazil, soon being elevated to the category of National Technology Center, what makes it worth saying, that it's directed to absorption and diffusion of new technologies, additionally to the functions that it currently performs.

It's undeniable the contribution from Centres as CETEL in the elevation of the productivity level of the industries that need, more than ever, improve the quality of their products and services, facing the level of competitivity in the internal and external markets, impelled by the globalization of the economy and a higher level of the consumer demanding.

Although the serious crisis lived by the country, the high inflationary rate that endanger the expansion plan of the industries in general, the moment of great politics disorder which is passing the Brazilian nation, the country needs to grow searching its self-sufficiency.

The investment of graduating and developing human resources as part of a wider educational process, that includes in its goals the upbringing to work, as a way of citzenship redemption and structure of a fairer society, still constitutes as being the greater key for the country.

That's once more, the reason of the importance of CETEL as a reference centre to the technical training not only in Brazil as for other countries in Latin America and the necessities of permanent updating of its material and human resources.

2 - DEVELOPMENT OF EVALUATION

The operational systematic of the evaluation, led simultaneously by the Brazilian and Japanese teams, implied the following itens:

2.1 - Methodology used

The methodology allows a re-analyze of the cooperation project using the concept of logical framework that defines the overview of the project, indicating the basic components of the project, i.e. inputs, activities, outputs, project purpose sector goal and super goal. It defines these components.

The evaluation focuses the project under the following aspects:

- Efficiency: to judge the appropriateness of the means, methods, time, period and cost required to achieve the results. It's concerned with the tranformation of input into output, in terms of time, cost and the use of other resources;

- Effectiveness: to examine the degree to which the project purpose is being achieved, by comparing the original planned targets with the results actually achieved, and to analyze the factors and conditions which have led to the differences, if any;

- Impact: to analyze development effects including possible negative effects brought about by the project. These effects shall be evaluated mainly from the viewpoint of operational and managemental, technical, economic, and social aspects. Impact refers to the positive and negative effects, anticipated or not, on the concerned sector or on overall development within the recipient country.

- Sustainability: to assess the likelihood of the objectives of the project continuing after the project assistance is over. It shall be evaluated mainly from the viewpoint of operational and managemental, technical, and financial aspects;

- Relevance: to examine the relevance of the project designs set up at the time of project preparation and those revised during project implementation, in accordance with changes in project circumstances. This is called project rationable. Based on an examination of the aspects previously state the relevance of the project can be discussed. Relevance is also related with whether or not the socio-economic needs are still existent to justify the continuation of the project.

2.2 - Target - Informant

Initially delimited by the Japanese study team, the target-people include:

. Beneficiaries from the project: trainees, graduates, graduates' supervisors and businessmen.

. Counterparts: instructors and technicians who have worked or who are presently working at CETEL.

.Managers: staff from SENAI who have, at the time of the project, supervised its implementation.

.Officials: specifically belonging to ABC and SENAI - National Department who have been responsible by the project at level of macro-system.

. Professionals: from universities and schools similar to CETEL who keep an interchange with the Centre.

2.3 - Data Collection

The necessary data collection to the evaluation was given through:

a - Fulfilment of the Indicator Table: it was performed a survey on a secundary data source in accordance with the indicators specified in the methodology evaluation model adopted (logical framework) including information about the project during the period from 1980 to 1993.

b - Interviews: 20 interviews were done in the period from November 16th to November 19th/93 including 35 people, from which originated a report with a synthesis of the information obtained.

c - Questionnaire: 5 different questionnaires previously prepared by the Japanese Study Team were adapted and translated into Portuguese by the Brazilian Work Team.

As a result of their distribution the following aspects were verified:

- Graduates: 222 questionnaires were mailed from which 23 were returned due to graduates' changing address and 68 were filled out and returned as asked.
- Graduates' supervisors: from the 54 questionnaires mailed, 10 were properly returned.
- Trainees: 07 from the 09 trainees who are attending the last period of the Electronic Training Course filled out the questionnaires.
- Instructors: 05 instructors integrating the target-public filled out the questionnaires.
- Counterparts: identified as the technical team, in this item were included 5 technicians who have already belonged to the working team of CETEL with those who are presently working in the Centre. From 10 questionnaires 7 were mailed back.

3 - RESULTS

According to the five aspects previously established it was analyzed the following:

3.1 - Efficiency

It can be asserted in a general way that the project was implemented in accordance with its initial planning.

The Japanese experts attended completely the purposes of the project, with a satisfactory training period, houwever the unlink of the team should have occurred gradually instead of all at once.

The technology transferred to the counterparts was positive.

Another aspect refers to the teaching materials translated at the time of the cooperation.

This material, in English, was worth for its technical contents, but the ones in Japanese were scarcely used since the translation takes time besides being expensive.

Regarding to the counterparts training in Japan it was adequate, contributing to increase their technological and training skillful level.

The difficulties found regarding to the training program, sometimes, incompatibles with the features and needs of the Brazilian counterparts, were surpassed through negotiation with the institutions responsible for the training in Japan.

The training period was considered adequate by the interviewed public on the whole, stressing that long training period (a year for example) can affect the familiar life of the counterparts.

The equipments donated to CETEL by the Japanese government were considered satisfactory, of good quality, requiring few spareparts up to now and being adequately provided .

However these equipments attended the needs of the industries during the cooperation period being up-to-date at that time what doesn't happen nowadays with most of them being considered obsolet.

Although the efforts carried out by SENAI to keep the Centre - CETEL - up-to-date and to complement the existente labs, there's shortage of equipments such as: Spectrum Analyzers, Digital Oscilioscopes, Digital True and RMS Multimiters.

Regarding to the Brazilian counterpart, the building and facilities were properly provided with enough space and in accordance with the project extent at that time.

The budget for installation and maintainance of the Centre was satisfactorily provided, allowing its entire operation not only during the cooperation period but up to the present moment.An investiment of US$ 1,176,694.00 was carried out by SENAI from the period of 1980 to 1993 aiming at the enlargement and continual adequacy of the CETEL facilities. Equipments and other materials acquired from 1987 to 1993 absorbed resources valuing US$ 1,029,278.00

The human resources required to the operation of the Centre were duly provided in 1980 the staff straight connected to the project was composed of 14 people, besides the administrative support from the team of the Vocational Training Center which was linked to the "Projeto Japão" (PJ).

At present CETEL counts with 46 employees.

Considering the aspects previously mentioned it can be asserted that the implementation of the cooperation project occurred in a effective way, with a positive balance as for the results accomplished and with regard to the solutions adopted to the problems which appeared at the time of the cooperation period.

3.2 - Effectiveness

The permanence of the Japanese experts in the centre during the cooperation period, made possible the transference of technology understanding and didactical skills for both counterparts and instructors and the realization of the training system in Electric and Electronics as initially planned.

From the implementation of CETEL to 1993, 476 trainees graduated in the Electronics and Electric courses, and according to information from the companies they're attending to their current needs.

According to data from the graduates' questionnaires, 92% are employed, perfoming jobs compatibles with the technical courses attendend at CETEL. (Two graduates are businessmen in the electro-electronics sector).

In addition to that, the technical level of the graduates was considered " high"by the technical/teaching team of CETEL and by the industries' supervisors.

Although the positive work out of the Electric course, it was deactivated in 1989 due to the low rate of applicants and increasing of dropout rate among the enrolled trainees.

Several points in the graduates' questionnaires, certify the good quality of the Electric course and advise a study about the possibility of its reintegration to the centre's activities.

.Regarding to the centre's facilities, equipments and instruments available, they were considered satisfactory by either trainees, graduates and technical/teaching team.

It's worth saying that 57% of the graduates considered the equipments and tools available in the Centre similar to the ones they use in their companies.

The technical-pedagogical performance of the counterparts and instructors was esteemed satisfactory by 95% of the trainees and graduates.

The didactical material was esteemed properly by 95% of the trainees and graduates while 57% of the technicians and instructors esteemed it inadequate.

The companies searched showed themselves receptive to the graduates from the centre since they're quickly engaged to the productive power and for presenting a higher technological level than graduates from similar centres. (80% of the industries' supervisors have preferred graduates from CETEL).

3.3 - Impact

According to the opinion of 90% of the supervisors from the companies searched, it's easier, nowadays, to hire Electric and Electronics techinicians than ten years ago.

The knowledge acquired at CETEL is mostly applicable in the companies and transferred to the graduates' colleagues, being the first, recognized as technicians of good level and able to contribute to the improvement of other employees.

The transference of knowledge has been involved technical information, equipment maintainance, use of instruments and development of projects, according to the observations registered in the graduates' and supervisors' questionnaires.

The technical team and instructors of CETEL have transferred their knowledge to centres of SENAI located in other States, through the technical assistance, and so to the industries through development of joint projects (example: software development to simulation of measurement with CEMIG).

It can be asserted that CETEL has caused a positive impact on the companies contributing to increase their level of productivity.

According to the interviewed professionals, CETEL has been established as a model in its working field, succeding in being a reference center for technological update of universities' teachers and similar schools.

3.4 - Sustainability

CETEL has been competent to continue implementing its activities and run as a National Technology Center in a self-sufficient way, despite the difficulties of SENAI regarding to the continual updating of material and human resources.

The operational costs of CETEL have been kept by the budget of SENAI-MG. Nowadays SENAI has been facing problems related to its operational budget, at the same time CETEL needs to expand and to spreed out their activities.

Concerning this matter there is a national policy wich recommend the adoption of alternative ways to produce returns which can minimize the operational costs of the centre and assure major investments in its technological development.

Although the wages policy of SENAI aren't exempt of the reflection of the wages policy from the educational area on the whole, which levels aren't compensating, the centre personnel have been kept without major changes, as for the opportunities of technological update offered by SENAI and for its substructure that's reliable and steady.

CETEL has tried to develop seminars and update courses regards to the upgrade of technical-pedagogical level of its human resources, in the opinion of 50% of the instructors and 71% of the counterparts.

The number of turn over of instructors and technicians has been low and the replacement of the ones who left by graduates, who are hired at CETEL after a period of permanence as technicians in a company, is promptly provided.

As for the activities developed by CETEL, besides the technical training courses, other important ones have been implemented: technical and technological assistance to the industries regarding to resolution of specific problems, researches and projects development.

The analysis of the technical training courses implemented with their respective demanding, and the detection of the greater technological increased areas, has motivated the opening of the industrial computer science running for two years.

Nevertheless this duty of curriculum revision, which is not continuously performed isn't enough to promote its continual and needed adequacy.

According to the data obtained through the interviews and from the questionnaires filled, the curricula of the technical training courses should comprise other contents essential to the back ground of a technician, as for example:

development of software, data communication computer science, English language(considered as important tool by means of consultation of technical literature).

The establishment, at CETEL of a support service to the graduates, was an alternative suggested through the questionnaires, as a way of helping the ones who enter the work market for the first time. Such support service would be able to guarantee a close and systematic relationship between CETEL and the companies, starting during the probation phase and making possible the collect of subsidy to the reformulation of the curricula of the courses being developed.

Another aspect reported through the interviews and questionnaires refers to the little divulgations of CETEL next to the industries, schools and society in general.

All the aspects previously pointed will be very important to malke strength its efficacy even more, although the sustainability of CETEL is assured with base in the seriousness at the work SENAI performs for 51 years.

3.5 - Relevance

CETEL was planned to provide manpower assigned to attend identified needs to the industrial sector by the time of its implementation.

Implemented with update technology and advanced equipments for that time, CETEL has placed itself ahead of time, achieving the purposes for which it was implemented.

At present the companies have adopted even more advanced technology in their productive process, impelled by the necessity of elevating their competitive level and attending the policy of industrial promotion concerning to the quality improvement.

The initial purpose of the project continues to be relevant nowadays, becoming urgent the updating of human resources and equipments, and the access to the advanced technology.

The variety of the Centre activities regarding to execution of courses and seminars to the companies, technical and technological assistance and development of projects has made possible a gradual linkage of the relationship CETEL/companies, which should be increased.

According to data obtained through the questionnaires, the courses developed at CETEL are applicable to other regions of the country, fact this, considered positive. Most of the supervisors from the companies (90%) assure that they shall need technical staff with a higher level each day.

4 - RECOMENDATION

Although the aspects enrolled in this item, are concerned to the evaluation of the cooperation project of CETEL, they were collected aiming at subsidy to the execution of future similar technical cooperation projects.

a) Initial Planning of the Project: the initial planning of the project should forecast besides the permanence of the Japanese experts during the cooperation development period their gradual unlink, aiming at preserving the continuity of the activities.

A major understanding of either the native or English languages as mediator is of fundamental importance to the transference of technology, training of counterparts and elaboration of didactical material and operational handbooks assigned to the working of the equipments.

b) Establishment of Chronogram: the comprehension of bureaucratic aspects relating to keeping track of projects thorough Governmental Departments shall contribute to the establishment of chronograms and terms more adequated to the reality.

c) Counterparts Training: the training of counterparts in Japan shoud be preceded by analysing the level of difficulties presented by the counterparts, their level of technological development, and their real shortage.

This study should guide the training planning as for the contents, strategy to be adopted and duration of the activities in Japan. Such procedure could assure the optimization of the expected results.

d) Project's Follow up: following up the project during and after its conclusion should be organized aiming at favouring possible problems' detection during its implementation and to guarantee the consolidation of good results.

This system would give beginning, for example, to a program of assistance to CETEL, having in view to contribute for the updating of its human resources and materials and for the technological increasing of CETEL, besides serving as a permanent channel of interchange between the cooperation agencies.

e) Guaranty of Continuity of the Project: during the cooperation period, strategies to guarantee the continuity of the project could be analysed according to the real possibilities and local peculiarities, aiming at adopting domestic solutions to future problems.

In case of obsolescence of equipments for instance, the work up of partnership among CETEL and companies holder of technologies could bring great benefits to both parts.

f) Support Service to Graduates: the development, by CETEL, of a support service to graduates at the execution of probation and at their entering in the work market, should make concrete as a way of promoting the linkage in the relationship CETEL/company, keeping syntony with the needs of the companies, and favouring the attendance to the graduates and their professional performance, and consequently, of assuring the feedback process of the curriculum.

g) Divulgation of the Centre Activities: a project of a more intense divulgation of the Centre and the activities developed should be object of major attention by SENAI, since the high concept it holds and the relevant services it grants are of noticing of a small number of industries and society in general. This procedure would contribute not only for the increasing of the applicants' number to the technical training courses as for making more accessible to the graduates the opportunities of working.

h) Knowledge of the Language: the understanding of the English language is considered of basic importance to the technical performance, since a great part of the specialized literature, catalogues, time table, etc, are in English in the electric and electronics areas.

CETEL should study alternatives to the development of English courses, even though being optional, parallelly with the technical training courses, aiming at its attendance by the trainees from the Centre.

i) Deactivation of the Electric Course: deactivation of the Electric course should be object of a deeper study, since the graduates from this course succeded in the work market in accordance with the information held in the questionnaires.

The investigation about the real reasons of the applicants' decrease number and the elevation of the dropout rate could lead, for example, to a restructure of the course instead of its deactivation.

j) Graduates' Updating: as for the human resources of CETEL need periodic updating, the graduates should also be thought over this aspect.

Because of the large territorial extension of the country, and the location of graduates in different parts of the Brazilian territory, plans of periodic updating for them could be worked out in the pattern of TCTP.

Additionally to that, the utilization of the capacity settled in the centre, should be considered to night-shift courses and updating seminars opened to the public as alternative inclusively as source of additiional income to CETEL.

VOCATIONAL TRAINING CENTRE (SE/EVTC) PROJECT

PROJECT SUMMARY	INDICATORS	ATTAINMENT	IMPORTANT ASSUMPTION	PRESENT SITUATION
I.OVERALL GOAL 1.Upgrade the technical standard of the electric and electronic technicos in Brazil. 2.To increase the number of the electric and electronic technicos in Brazil.	1.1 Technical standard of technicos. 2.1 No. Of electric and electronic technicos.	1.1 Technical level of graduates is considered high by the industries. 2.1 In Brazil - 1985/89: 254.500 In CETEL - 1982/93: 454	1. It is easier to recruit higher trained technicians.	1.Companies prefer CETEL's graduates to others from similar schools. 2.Mostly of graduates execute jobs compatibles with the courses attended at CETEL.
II.PROJECT PURPOSE 1.To establish an appropriate training system for higher electric and electronic technique and supply technicos. 2.SE/EVTC works as a model vocational training center in the field of electric and electronic technique in Brazil.	(After the Japanese Cooperation) 1.1.1 No. of training subjects 1.1.2 Rate of implemented subjects to plan 1.1.3 No. of companies implementing OJT program 1.1.4 No of trainees/graduates/dropout rate 1.1.5 Companies' evaluation on SE/EVTC 1.1.6 Trainees' evaluation on SE/EVTC 1.1.7 Operation budget 1.1.8 No. of equipment bought by SE/EVTC 1.1.9 No. of SE/EVTC internal seminars for trainees 1.1.10 No. of SE/EVTC internal seminar of trainers 1.1.11 Promotion costs to companies and students? 1.2.1 No. of staff members 1.2.2 No. of newly developed training materials and textbooks 1.2.3 No. of textbooks translated into Portuguese 1.3.1 Evaluation on management/maintenance/utilization of facilities/machines and equipment 2.1 No. of training subjects developed by SE/EVTC and comprehensively applicable in other region in Brazil. 2.2 No. of technical seminars for the instructors in other training centers.	1.1.1 Electric - 14 Electronic - 15 1.1.2 Electric - 100% Eletronic - 100% 1.1.3 260 companies 1.1.4 Trainees - 1985/93:86(annual average) Graduates - 1985/93: 386 Dropout - 1985/92: 9,2% (annual average) 1.1.5 CETEL performance is satisfactory according to the companies. 1.1.5 Annual average of scholarship for industries - 1985/93: 22,7 1.1.6 Enterviewed trainees are satisfied with CETEL 1.1.7 US$ 2.805.613,00 (1985/93) 1.1.8 467 itens of equipment 1.1.9 5 seminars (1989/93) 1.1.10 5 seminars (1989/93) 11.2.1 7 people 1.2.2 71 (1985/93) 1.3.1 Evaluated as satisfactory by trainees, graduates and counterparts 2.1 Electric: 10 Eletronic: 10 2.2 In other regions:11 In CETEL: 5	1.Graduates work as appreciated technicos. 2.Trainings meet industrial needs. 3.Government continue to support industrialization policy and take suitable promotion measures. 4.The training system of technico was established and No. of technicos was increased in the country. 5.Technical-pedagogical performance of instructors and counterparts is satisfactory. 6.Graduates tranfer tecnology to their company colleagues. 7.Maintainance of labs and equipments have been done properly by instructors and technical team. 8.No. of applicants to Electronic and Industrial Computer course is high. 9.Electric course was deactivated in 1989. 10.Equipments donated by Japanese Government requires little maintainance.	1.Implementation of Industrial Computer course in order to attend industry needs. 2.Increasing of technical/technological assistance to the industries. 3.Maintainance of equipments in other SENAI's centres by CETEL's technical team. 4.Donated equipments presents obsolescence level. 5.A more intense divulgation about CETEL's activities is required. 6.CETEL is recognized as a vocational training centre model and will be classified as a National Technology Centre.

PROJECT SUMMARY	INDICATORS	ATTAINMENT	IMPORTANT ASSUMPTION	PRESENT SITUATION
III.OUTPUTS 1.Training implementation system has been established for the following two fields: 1) Electric technique 2) Electronic technique 2. Counterpart instruct subjects, develop training materias and make a training plan. 3) C/Ps can operate and maintain facilities, machines and equipment. 4) Improved training module system for the program.	(During the Japanese Cooperation) 1.1 No. of training subjects 1.2 Rate of implemented subjects to plan 1.3 No. of companies implementing OJT program 1.4 No. of trainees graduate/dropout rate 1.5 SE/EVTC's evaluation on trainees 1.6 Operation Budget 2.1 No. of C/Ps 2.2 No. of newly developed training materials and text book. 2.3 No. of textbooks translated into Portuguese 2.4 Evaluation on C/Ps'training skill. 2.5 Evaluation on developed C/Ps' training plans. 3.1 Evaluation on utilization of facilities/equipments 3.2 Evaluation on machine maintenance. 4.1 No. of improved module system	1.1. 2 Courses implemented as planned Electric - 1981/82: 18 Electronic -1981/82: 20 1983/84: 15 1.2 Rate of plan implementation: 100% 1.3 OJT is implemented since the 1984: 17 1.4 Trainees - 1981/84 - Electric course: 33 (annual average) Electronic) 42 (annual average) Graduates: 1981/84: 99 Dropout: 1981/84: 7.75% 1.5 Trainees performance is satisfactory according to instructors and technical team. 2.1 15 C/Ps trained in 83/84 2.2 Material and textbooks:29 2.3.Textbooks translated into Portuguese: 26 2.4 Counterparts level is high. 2.5 Mostly satisfactory. 3.1 Highly evaluated by counterparts and instructors. 3.2 Operation and maintainance of equipments is properly performed by technical team and instructors. 4.1 Electronics modules: 3	1.Trainees'education level is to be maintained appropriately. 2.Trained counterparts continue to work fo SE/EVTC. 3.Some of the graduates remain in the center to be a future instructor. 4. Companies pay more appreciation to upgrade the technical standard. 5.Needs for technico are high applicants to SE/ EVTC training course will be continuously. 6.Sparepars is continuously supplied. 7.Replacement of equipments is proporly undertaken.	1.Updating technological courses (OJT) are implemented by CETEL.
IV.ACTIVITIES 1.Training and suggestion for C/P 2.Development of textbook and training and suggestion for teaching method. 3.Seminar for company employees. 4.Training and suggestions for installation of equipments. 5.Training and suggestions for improvement of module education systems.	(IMPUT) <Japan> 1.No. of despatched of experts 2.No. of counterpart training in Japan 3.Facilities provided 4.1 Installation and equipments provided 4.2 Education material and Textbook provide <Brazil> 1.Provision of land 2.Manpower (No. of C/Ps') 3.Establishment costs 4.Building and facilities constructed	<Japan> 1.7 Long-term experts and 2 short-term experts were dispatched. 2.17 C/Ps were trained in Japan during the Project. 3. Equipments were supplied. 4.Total expenses: 639 million yen. 4.1 1972 items of equipments were provided 4.2 66 titles of didatic materials and textbooks were provide. <Brazil> 1. 3.707,6 m^2 were provided. 2. No of counterparts - 14 (1980/83) Total center personnel - 46 (1993) 3. US$1,029,278.00 4.US$1,176,694.00	PRE-ASSUMPTION 1. According to rapid industrialization by foreign investment, it was required to upgrade the technical standard of technicians in Brazil. 2.The Government of Brazil (SENAI) planned the establishment of vocational training center for electric and electronic technology in Belo Horizonte.	1.Building and facilities were provided as planned. 2.Facilities were enlarged to attend the project purposes.

EVALUATION RESULTS ALONG THE FIVE POINTS OF EVALUATION (CETEL)

EVALUATION POINTS	EVALUATION RESULTS
EFFICIENCY	- On the whole the project was implemented according to the initial program. - Japanese experts attended satisfactorily to the purposes of the project. - Unlink of the whole Japanese experts team at the same time wasn't satisfactory. - Technology transference to the counterparts was satisfactory. - Didactical material written in Japanese were scarcely used. The translation was long and expensive. - Counterparts training in Japan was satisfactory, but it demanded adequacy of the programs. - Equipments donated by the Japanese Government were satisfatory and advanced for that time. - There have been no problems regarding to spare parts replacement or maintainance. - Equipments are obsolet at present. - Building and facilities were provided by SENAI according to the initial plan. - Costs of settling down and running of CETEL were properly absorbed by the budget of SENAI. - Human resources were provided according to the initial plan. - Planning and implementation of the project was efficient with positive results.
EFFECTIVENESS	- Technological knowledge and didactical skills were transferred to the counterparts and instructors by the Japanese experts. - Electric and Electronic Training courses were implemented according to the program. - Graduates are attending the needs of the companies. - 92% of graduates are employed in positions compatible with the courses attended at CETEL. - Technical level of the graduates is high according to technicians, instructors, and companies' supervisors. - Electric course was deactivated in 1989 due to low rate of applicants and high dropout rate. - Most of trainees and graduates is satisfied with the facilities, instruments, and equipments available in the Centre and with the technical-pedagogical level of instructors. - 57% of graduates have considered the equipments and tools available in the Centre similar to the ones they use in the companies. - Most of trainees and graduates consider the didactical material satisfactory, and so do 57% of instructors and technicians. - Companies prefer the CETEL graduates due to their faster engagement to the productive power.

IMPACT DIRECT	- Most of learning acquired at CETEL are applicable in the companies and transferred by the graduates to their colleagues. - Technicians and instructors of CETEL have transferred their technological skill to other schools of SENAI from different States. - CETEL has contributed to solve specific problems in the companies through technical assistance.
INDIRECT	- 90% of the companies' supervisors think that it's easier to enroll Electric and Electronic technicians nowadays than 10 years ago. - There has been positive impact from the centre on the industry as for the increasing of the productivity level. - CETEL is thought over as a reference center for technological updating of universities teachers and similar schools.
SUSTAINABILITY	- CETEL has been able to implement it sactivities in a self-sufficient way. - Operational costs of the centre are absorbed by the budget of SENAI-MG. - Adoption of alternatives ways as a source of additional income will be thought over by CETEL. - Instructors and technicians have preferred remaining in the Centre that, besides the wages offer a steady substructure and opportunities to technological updating. - Besides the technical courses CETEL provides technical and technological assistance to the industry, researches and projects development. - To attend the industries' demand it was implemented the Industrial Computer Science Course. - Curricula shall be periodically updating and include the contents necessaries to upgrade technicians according to the industries' needs. - CETEL shall count on a support service to the graduates during the probation phase and entry in the work market. - Activities of the Centre are little divulged before the industries, schools and society in general. - CETEL sustainability is assured with base in the seriusness of the job perfomed by SENAI for 51 years.
RELEVANCE	- CETEL was planned to attend the companies' needs, identified during its implementation period. - Companies have adopted major advanced technologies in their productivity process. - Policy of industrial promotion concement to the improvement of quality, interfers in the manpower needs of the companies. - Purpose of the project is still relevant to the current needs of the companies. - Updating of human resources and equipments of CETEL should be continual. - Courses developed at CETEL are applicable to other Brazilian regions. - 90% of the companies' supervisors assure that those shall need a higher technical manpower level each day.

FACTORS CONTRIBUTING TO IMPLEMENTATION AND PRODUCTION OF IMPACT (CETEL)

	PROJECT IDENTIFICATION	APPRAISAL	IMPLEMENTATION DESIGN	IMPLEMENTATION	OTHERS
DUE TO SIDE JICA	- Project met the necessities of graduating industrial manpower	-CETEL was the first Centre in the Electric and Electronic area to be implemented in partnership SENAI/JICA. -The Japanese high technical level in Electro-electronic area was most relevant.	-Presence of Japanese experts during the project implementation was decisive.	-Equipments were donated according to the initial planning. - Transference of technology and didactical skills by the Japanese was satisfactory for both counterparts and instructors.	
DUE TO BRASIL SIDE SENAI	- Graduation of technicians of medium level (highschool) came to stop the gap in the structur of industries' manpower. -Investment in the graduation and development of human resources constitutes as the base to the industrial development.	-SENAI is recognized as an institution directed to the graduation and development of human resources for the industrial sector. -SENAI has always had great technical credibility on the industrial sector.	-Experience of SENAI in planning, implementing and administrating training centers was effective. -As a private institution SENAI has always had flexibility in administrating its budget resources.	-Emphasys on the Practical part of the curriculum has contributed to the ingression of the graduates within the porductive process of the industries. -Instructors and technical team were constituted mostly by former employees of SENAI - MG. - Budget was properly provided.	- Electronic development has been accured in a rythm more advanced than other learning areas. -Electronics constitutes the foundation for the technological development in several sectors of the economy. - CETEL has contributed effectively for the system development of SENAI

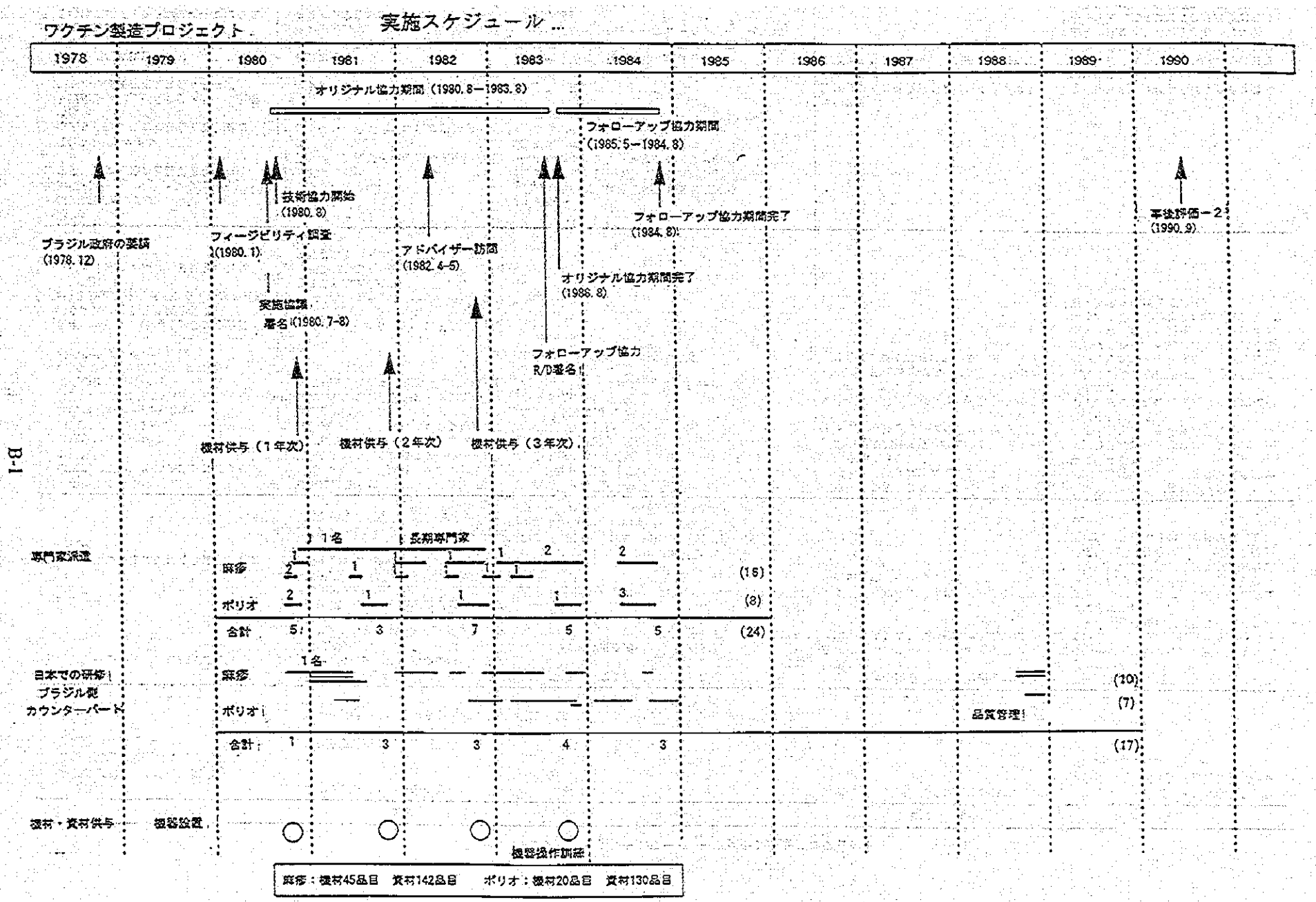
FACTORS INHIBITING IMPLEMENTATION AND PRODUCTION OF IMPACT (CETEL)

	PROJECT IDENTIFICATION	APPRAISAL	IMPLEMENTATION DESIGN	IMPLEMENTATION	OTHERS
DUE TO JICA SIDE				-Didactial material written in Japanese was scarcely used by either counterparts or trainees.	
DUE TO BRAZIL SIDE SENAI			-Communication through English language between Japanese experts and Brazilian Counterparts, made difficult in the beginning for the implementation of the project. -First curricula were conceived at variance to the Brazilian Teaching Legislation	-Electrical course was deactivated due to reduced number of applicants and high rate of dropout. -CETEL doesn't count on a follow up system to the graduates.	-Procedures of projects close to Governmental Departments is slow due to bureaucratic encumbrance.

LESSONS DRAWN FROM EVALUATION STUDY AND SUGGESTIONS FOR FUTURE COOPERATION

	LESSONS DRAWN FROM EVALUATION STUDY	SUGGESTIONS (SHORT TERM)	SUGGESTION (MID-TERM)	SUGGESTIONS (LONGTERM)
TO JICA SIDE	1-There'll be a greater guaranty of the continuity of the project if the unlink of Japanese experts be gradual. 2-Technology transference will be effective if the language obstacle be surpassed by the cooperator team. 3-Didactical material and equipments' operational handbooks shall be translated and suitable to the trainees level. 4-Japanese training plan shall consider the shortage and technical skill of the counterparts. 5-Attainment of the project's objectives requires its systematic attendance with process feed-back.	1-Inclusion in the chronogram of different periods for Japanese experts' permanence in the project. 1-Choice of homologous with enough knowledge of either the local or the second language of the cooperaton. 4-Joint analyses, by the cooperators, of the training plan previously elaborated.	3-Adequacy of didactical material (involving translation and methodology) shall precede the initial curricular activities.	5-Development of a follow up system during and after the cooperation period aiming at: -possible corrections of the project course. -sedimentation of the achieved results. -methodical interchange between the cooperaton.
TO BRAZIL SIDE SENAI	A-Project chronogram will be more effective if its procedure period be pondered close to Governmental Departments. B-Project continuity will be assured if local alternatives be adopted with such objective. C-Industry needs shall guide changes in the courses' curricula if there be a narrower linkage between CFTEL/companies. D-Entry of Graduates in the work market and demad of the Centre's activities will be increased if a more intense divulgation of its activities be done.	B-Optimization of the capacity installed in the Centre through increasing of technological updating programs and technological transference(emphasys:nightshift course and alternative of additional income). C-Organization of a support service to the graduates regarding to probation phase and entering in the work markert. C-Evaluation study about the real reasons which conducted to the deativation of the Electric course D-Elaboration of a specific program about the Centre divulgation.	A-Elaborations of the project consonant to the rules and policies of Governmental Departments.	B-Work out of partnership among the Centre and companies holder of advanced technology.

別添-B ワクチン製造プロジェクト


ワクチン製造プロジェクト
実施スケジュール
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
オリジナル協力期間（1980.8－1983.8）
フォローアップ協力期間
（1985.5－1984.8）
ブラジル政府の要請
(1978.12)
フィージビリティ調査
(1980.1)
技術協力開始
(1980.8)
実施協議
署名(1980.7-8)
アドバイザー訪問
(1982.4-5)
オリジナル協力期間完了
(1983.8)
フォローアップ協力
R/D署名
フォローアップ協力期間完了
(1984.8)
事後評価－2
(1990.9)
機材供与（１年次）
機材供与（２年次）
機材供与（３年次）
B-1
専門家派遣
１名
長期専門家
麻疹
ポリオ
合計
(15)
(8)
(24)
日本での研修
ブラジル側
カウンターパーズ
１名
麻疹
ポリオ
合計
(10)
(7)
(17)
品質管理
機材・資材供与
機器設置
機器操作訓練
麻疹：機材45品目　資材142品目　　ポリオ：機材20品目　資材130品目

ロジカル・フレームワーク －ワクチン製造プロジェクト

要約	指標	実績	重要な外部条件	現状
I. 開発目標 1. 麻疹及びポリオ発病件数減少を目的とした予防措置支援のための生ワクチン製造技術の強化	1.1麻疹及びポリオの発病件数 1.2麻疹及びポリオによる死亡率 1.3麻疹及びポリオに対する予防接種実施率	麻疹ワクチン　ポリオワクチン 1.1 99,263件　1,290件　(80) 2,931件　0件　(92) 1.2 2.7%　0.1%　(80) 0.3%　0.0%　(90) 1.3 29.1%　10.0%　(80) 100.0%　97.7%　(92)	1. 他の生ワクチン製造技術も改善された。	1. 日本の技術移転によって既存のワクチン製造技術レベル及び品質管理技術レベルが向上した。
II. 案件目的 1. 生ワクチンの大容量製造技術の強化 2. 生ワクチン製造に関する品質管理能力の強化	〔日本による協力終了後〕（1986－1993） 1.1ブラジルにおける麻疹及びポリオワクチン生産量 1.2ブラジルにおける麻疹及びポリオバルクワクチン生産量 1.3ブラジルにおける麻疹及びポリオワクチン／バルクの輸入量 1.4ブラジル国産ワクチンの使用比率 2.1ブラジルの麻疹及びポリオワクチン生産における廃棄品発生率 2.2ブラジルにおけるワクチン製造の種類毎に実施した品質管理検査と取扱い量	1.1 麻疹ワクチン投資量　17,779,079　(86) 11,312,020　(89) ポリオワクチン投資量　6,286,828　(86) 6,072,620　(89) 1.2 N.A.　(86) 1.3 ポリオワクチンバルク　65.6 リットル　(89) 315 リットル 1.4 麻疹100%　ポリオ 100% 2.1 麻疹ワクチン N.A.　ポリオ 0(86)　0(93) 2.2 麻疹ワクチン　936(86)　326(93) ポリオワクチン　99(86)　91(93)	1. 取扱い者の技術レベルが維持されている。 2. ブラジルのワクチン流通網(冷蔵貯蔵庫、輸送システム)が整備されている。 3. ブラジル政府は引き続きワクチン国内生産をサポートしている。	1. 機械操作員の技術レベルが適切に維持されている。 2. ワクチン製造システムが適切に整備している。しかし地方におけるコールドチェインと冷蔵貯蔵施設は強化されねばならない。 3. ブラジル政府はワクチンの自国内生産を重要視しており、B型肝炎ワクチン（DNA組み替えによる）、風疹、おたふく風邪、三種混合ワクチン等の製造技術に関する日本との協力を要請している。
III. アウトプット 1. 信頼性の高い麻疹ワクチン製造ラインの改善 i)種ウィルスの培養 ii)SPF 卵の品質検査 iii)ウィルス細胞の培養 iv)ウィルス含有の検査 v)その他の品質検査 vi)ウィルス溶液とバルクの製造 vii)麻疹ワクチンの製造 2. 麻疹ワクチン数株製造プランの改善 i)ウィルス含有強度測定検査 ii)その他の輸入バルクウィルスの品質検査 iii)ポリオウィルス品質管理の強化	〔日本による協力期間中〕（1980－1985） 1.1F1OCRUZ による麻疹ワクチン生産量 1.2F1OCRUZ による麻疹ワクチンバルク生産量 1.3F1OCRUZ による麻疹ワクチン生産における想定品発生率 1.4F1OCRUZ におけるワクチン製造の種類毎に実施した品質管理検査と取扱い量 2.1F1OCRUZ によるポリオワクチン生産量 2.2F1OCRUZ によるバルクワクチン輸入量 2.3F1OCRUZ によるポリオワクチン生産における想定品発生率 2.4F1OCRUZ におけるポリオワクチン製造の種類毎に実施した品質管理の取扱い量	1.1 50,046,115 投資量（82） 12,145,062 投資量（85） 1.2 1,812 リットル（83） 3,054 リットル（85） 1.3 5.4%（83） 1.4 732回（83） 825回（85） 2.1 600,000（84） 5,929,000（85） 2.2 72.5 リットル（84） 60.6 リットル（85） 2.3 0%（80） 0%（85） 2.4 35 回（84） 138回（85）	1. ワクチン製造訓練を受けたカウンターパートは引き続き製造工程における仕事を継続している。 2. 品質管理訓練を受けたカウンターパートは引き続き品質管理業務に携わっている。 3. 必要資機材が継続的に十分確保されている。 4. 製造施設と機材は適切に保守が行われさらに改善が施されている。	1. 日本で訓練を受けたカウンターパートの大多数は引き続きワクチン製造の仕事に従事している。 2. 品質管理訓練を受けたカウンターパートの大多数は引き続き品質管理の仕事に従事している。 3. 必要な資機材のほとんどは継続的に十分確保されている。 4. 施設及び機材の保守管理は行き届いている。しかし、機材及びデータの更新が必要である。一方、ガラス容器等国内メーカーからの調達資材の品質は改善されて新しく設けられた FIOCRUZ の要求基準を満たしている。
IV. 活動 （A） 麻疹ウィルス 1. B1KENCAM- 70 ワクチンの臨床テスト 2. ワクチン生産能力と品質管理の強化 （B）ポリオワクチン 1. 輸入ワクチンに対する品質管理能力の強化 2. 3 価及び 1 価のバルクウィルスの製造のための品質管理システムの確立 3. 輸入ウィルス溶液の希釈、混合、及び瓶詰め工程の確立 4. プロジェクトに関する技術スタッフへの技術的提言と訓練 5. その他プロジェクト実施に必要な合意事項 6. その他プロジェクトに必要な関連活動	〔インプット〕 「日本側」 1. 日本人専門家の派遣 2. 機器材の提供 3. 種ウィルス及び一価ウィルス溶液の提供 4. 日本におけるブラジル側カウンターパートの研修 「ブラジル側」 1. ブラジル側カウンターパート及び管理要員の選定 2. 土地、建物及び施設の提供 3. その他の機材、備品、及び資材の提供や交換及び日本から提供されたもの以外にプロジェクトの実施のために必要とされた機器材 4. プロジェクト運営資金と費用の確保	「日本側」 1. 長期専門家 1 名及び短期派遣専門家23名 2. 麻疹ワクチン－Co2　ふ-3B器他44品目 ポリオワクチン－充填機材一式他19品目 3. 麻疹ワクチン－142品目 ポリオワクチン－130品目 4. 日本におけるカウンターパート研修の実施 「ブラジル側」 1. カウンターパート17名、内(麻疹10名、ポリオ7名) 2. 土地、建物、及び施設は提供された 3. 麻疹：エドワーゾ　フリーズドライ機他111品目 及びポリオ：ラミナーフローモジュール他55品目 及び部品 4. 設立資金：600万US ドル	事前条件 1. ブラジルの外貨保有高はワクチン輸入に十分ではない。 2. ワクチン調達を輸入に頼ると継続的に入手できない危険がある。	1. ブラジルの外貨保有高はワクチン輸入のために十分である。 2. 現時点までは、ワクチン保有量は通常の使用及び啓蒙キャンペーンに必要な量を十分満たしている。しかしながら、今後大規模な病原菌撲滅作戦用に大量のワクチンが必要で、この量を確保することが問題となる可能性がある。

評価5項目に沿った評価結果－ワクチン製造プロジェクト

評価項目	評価結果
実施効率性	- 長期滞在専門家1名及び短期専門家23名が予定通り派遣された。 - 麻疹ワクチン製造技術並びに麻疹ワクチン及びポリオワクチンの品質管理技術の移転が協力期間中に完了した。 - プロジェクト開始当初においてブラジル側カウンターパートが手法を学ぶために最低2－3ヶ月の時間が必要であったと思われる。 - 麻疹ワクチン製造のための輸入原料と機材並びにポリオワクチンの品質管理用の機材は予定通り日本側により供与された。 - もとからあった手動式機材は FIOCRUZ により強化が行われワクチンの増産が可能になった。
目標達成度	- ワクチン製造は保険省によるワクチン接種プログラムのための需要に従って行われた。 - カウンターパートのワクチン製造及び品質管理に関する能力が向上し、職業的により高い水準に達した。 - 機材の保守管理技術者達は十分な技術的訓練を受けたとは感じていない。
案件効果 直接的効果	- 現時点では、ブラジルにおけるポリオの発生はない。また麻疹による死亡率は減少した。 - 1980年に99,263件であった麻疹の発生件数は1992年には2,931件となり、1990年に1,290件であったポリオの発生件数は1992年には0になった。 - 協力プロジェクトによる品質管理技術の強化により FIOCRUZ は独自の仕様を作り上げることができた。その結果、それまで品質が劣るとされていたガラス器のような製品の品質が向上した。
間接的効果	- 移転された複合研究技術は FIOCRUZ により黄熱病ワクチンのような他のワクチンの製造にも応用され、さらにナイジェリアへの移転が行われた。 - 1991年以来WHOは FIOCRUZ をワクチン製造のラテンアメリカにおける二つの地域センターの一つに指定した。 - 移転された品質管理技術はすべてのワクチンの国家管理、主として特定の研究所の管理手法及び管理上の分析手法の改善に貢献した。 - 1988年以来行われている第三国研修プログラム(TCTP)はカウンターパートの機能の水準の向上と結果的には日本人専門家から学んだ品質管理技術の強化を行うことになった。
自立発展性	- ワクチン製造システムはほとんど完成され、貯蔵施設の強化が行われた。 - 機材は10年以上の集中的使用のため、消耗スペアパーツの不足と生産量の低下を招いている。 - 部品調達のための十分な予算配分及び部品交換のシステムを確立することが重要と思われる。 - FIOCRUZ は建物施設の拡張工事を行っている。この目的は将来十分な量と種類のワクチン製造と品質管理に必要なスペースを確保することである。 - プロジェクトにより訓練を受けたカウンターパートのほとんどは現在でもワクチン製造ラインで仕事をしている。 - FIOCRUZ は国内経済のインフレ対策のために新しく従業員を雇用することができない。そのため十分な数の熟練技術者を確保できていない。
計画妥当性	- 日本の技術協力はブラジル政府の保健政策及び FIOCRUZ のワクチン増産計画とにタイミングよく合致した。 - 麻疹のワクチンに関しては、元来年間1,000万投与量の製造を予定していたが、1990年には1,500万投与量を製造することができた。このことはプロジェクトがFIOCRUZ の製造施設の強化の必要性を満たしているということである。

効果発現に貢献した要因－ワクチン製造プロジェクト

	発掘段階	審査段階	実行計画段階	実施段階	その他
JICAに起因するもの	1. プロジェクトはブラジルにおける生ワクチン需要が非常に高かった時期に実施された。 2. 日本の技術協力はブラジル政府の保健政策と時期的によく合致し、FIOCRUZ の地域要求にもよく合っていた。	1. 日本側がブラジル市場では確保しにくい材料や機材を提供した。 2. 派遣された日本人専門家が、プロジェクトに配置された。	1. 日本側がブラジル市場では確保しにくい材料、機材を日本側が提供する。 2. 派遣された日本人専門家が、プロジェクトに配置される。	1. 日本人専門家は予定通りに派遣され技術移転が予定通りに実行された。 2. 麻疹ワクチン製造機材が導入され、品質管理システムが確立された。	1. 日本の技術援助は日本とブラジルの関係強化に役立った。 2. 日本側は麻疹ワクチン製造のためにBIKEN CAM -70 系麻疹ウィルスを供給し、資金援助及び技術的支援等プロジェクトに必要なものを提供し、プロジェクトの実施の上で重要な役割を演じた。
ブラジル側に起因するもの	a. FIOCRUZ はラテンアメリカ最大の総合研究施設でプロジェクトの実施機関として指定された。 b. 日本のワクチン製造技術協力はブラジル政府の保健政策と時期的に合致した。 c. 全国ワクチン接種プログラムによるブラジル政府の新しい政策とワクチン製造プログラムの時期が一致していたため、政府により優先プロジェクトと指定された。	a. FIOCRUZ 及び MOH 以外のブラジル側の公的融資機関、例えば FINEP（プロジェクト融資機関）がプロジェクトに資金的支援を行った。	a. ブラジル市場で購入可能な材料や機器は国内で購入する。 b. 麻疹ワクチン製造と麻疹及びポリオワクチンの品質管理に必要な建物施設とプラントはブラジル側が提供する。	a. 十分な人数のスタッフが確保され、訓練を受けた。 b. ブラジル人カウンターパート９名が日本での研修のために派遣された。	a. 第三国研修はプロジェクトによるブラジル側カウンターパートの技術水準を確かなものにする上で役に立った。 b. 1991年 FIOCRUZ はアメリカ WHO のラテンアメリカにおける二つの地域センターの内の一つに指定された。 c. ブラジルのワクチン自給政策はプロジェクトの重要性を協調することになった。

横表示2

効果発現を阻害した要因－ワクチン製造プロジェクト

	発掘段階	審査段階	実行計画段階	実施段階	その他
JICAに起因するもの			1. 機材の一部には英文説明書がなかった。 2. ブラジル市場では購入できない部品があった。		
ブラジル側に起因するもの			a. カウンターパートにとってプロジェクト開始時に２－３ヶ月の予備期間が必要であった。 b. 機材保守の訓練はプロジェクトには含まれていなかった。		横変り3

教訓と提言－ワクチン製造プロジェクト

	教訓	提言(短期)	提言(中期)	提言(長期)
JICA側に起因するもの	1. カウンターパートへの機材保守管理技術の移転を十分に行うべきであった。	1. 現地の技術水準や価格の事前調査はもっと綿密に行われるべきである。	1. 機材の保守管理技術により多くの力を入れるべきである。部品の交換、また海外からの部品調達の手続き等についての訓練も重要とされる。	
ブラジル側に起因するもの	a. 機材保守のための訓練には余り力が入れられていなかった。 b. カウンターパートがプロジェクトに関する基礎知識を十分に得るためにプロジェクト開始の段階で2－3ヶ月の予備期間を設けることが必要であった。 c. FIOCRUZ は常に知識と技術の最新情報を入手しておくために新技術を追求するべきであった。 d. ワクチンの品質を保つためにコールドチェインシステムの確立に力を入れるべきであった。 e. 部品購入予算の確保と部品の交換システムを確立しておくべきであった。 f. 国内市場で購入されたガラス容器等品質の劣る資材を購入したことがプロジェクトの効率を阻害した。	a. 技術者に対する部品購入及び部品交換システムに関する訓練がもっと行われるべきである。 b. プロジェクトの実施に先だってカウンターパートの基礎知識をプロジェクトのレベルに合わせるため、2－3ヶ月の準備研修が必要である。 d. 地方における貯蔵施設及び運搬システムの改善が必要とされる。	e. 協力プロジェクト終了後にも部品購入予算の確保と部品交換システムの確立が機材の寿命を延ばすために必要とされる。	c. 内部研修システムを確立するべきである。

INDICATOR TASLE -1
BIOLOGICALS PRODUCTION PROJECT

ITEM OF STUDY	UNIT	FISCAL YEAR													
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
I OVERALL GOAL															
1.1 Incidence of measles/poliomyelitis															
A. Population															
a-1. Population(all age)million	person													147.3	
a-2. Population(age 0-14)million	person													5.06	
B. Incidence of measles															
b-1. No. of new sufferers from measles(all age)	person	99263	61279	3970	52257	80879	75998	129942	68059	26179	22853	61435	42532	7887	2931
b-2. Incidence of measles(all age)	%	83.4	50.5	31.9	46.3	63.1	58.2	97.6	48.7	18.9	16.7	42.8	29.1	5.3	1.9
b-3. No. of new sufferers from measles(age 0-14)	person	*	*	24736	46509	62445	57929	94172	48180	22269	17754	45244	31797	5789	*
b-4. Incidence of measles(age 0-14)	%	*	*	20.0	37.0	48.7	44.4	70.8	35.5	16.1	12.6	31.5	21.8	4.0	*
C. Incidence of poliomyelitis															
c-1. No. of new sufferers from poliomyelitis(all age)	person	1290	1221	69	45	130	329	612	196	106	35	–	–	–	–
c-2. Incidence of poliomyelitis(all age)	%	1.1	0.1	0.0	0.0	0.1	0.2	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0
c-3. No. of new sufferers from poliomyelitis(age 0-14)	person	*	*	*	*	*	*	*	*	*	*	*	*	*	*
c-4. Incidence of poliomyelitis(age 0-14)	%	*	*	*	*	*	*	*	*	*	*	*	*	*	*
1.2 Rate of death from measles/poliomyelitis															
A. Rate of death from measles															
a-1. No. of deaths from measles(all age)	person	3263	2335	1670	1769	2344	1165	1633	794	400	205	475	*	*	*
a-2. Rate of death from measles(all age)	%	2.7	1.9	1.3	1.4	1.8	0.9	1.2	0.6	0.3	0.1	0.3	*	*	*
a-3. No. of deaths from measles(age 0-14)	person	3206	2300	1645	1717	2287	1103	1525	758	382	194	442	*	*	*
a-4. Rate of death from measles(age 0-14)	%	2.7	1.9	1.3	1.3	1.8	0.8	1.1	0.5	0.3	0.1	0.3	*	*	*
B. Rate of death from poliomyelitis															
b-1. No. of deaths from poliomyelitis(all age)	person	164	12	19	10	15	15	33	23	19	8		*	*	*
b-2. Rate of death from poliomyelitis(all age)	%	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		*	*	*
b-3. No. of deaths from measles(age 0-14)	person	148	12	13	4	9	9	26	15	10	6		*	*	*
b-4. Rate of death from poliomyelitis(age 0-14)	%	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		*	*	*
1.3 Rate of preventive inoculation for measles/poliomyelitis															
A. Population															
a-1. Population(age 0-4)(million)	person	17.1	17.5	17.9	18.3	18.7	19.2	19.2	19.9	19.5	19.4	19.7	18.7	17.5	*
B. Rate of preventive inoculation for measles															
b-1. No. of inoculated persons for measles(all age)(million)	person	5.0	10.1	6.5	6.3	8.6	5.1	5.0	17.1	6.3	6.6	7.6	6.7	32.2	*
b-2. No. of inoculated persons for measles(age 0-4)(million)	person	*	*	*	*	*	*	*	*	*	*	16.5	20.8	22.0	*
b-3. Rate of inoculation for measles(age 0-4)	%	29.1	*	*	*	*	*	*	*	*	*	92.8	100	100	*
C. Rate of preventive inoculation for poliomyelitis															
c-1. No. of inoculated persons for poliomyelitis(all age)(million)	person	21.7	21.9	19.5	20.6	18.8	17.5	19.3	20.0	20.4	21.7	21.0	20.7	19.7	*
c-2. No. of inoculated persons for poliomyelitis(age 0-4)(million)	person	17.1	17.5	17.1	19.0	17.0	16.3	17.1	17.9	18.1	18.4	18.2	17.8	17.1*	*
c-3. Rate of inoculation for poliomyelitis(age 0-4)	%	100	100	95.4	93.1	90.9	85.0	89.4	89.7	92.8	94.8	92.4	95.8	97.7	*

Legend : * No data avaurable . – No cases . Note Measles 1993 - up to 42nd week

INDICATOR TABLE -2
BIOLOGICALS PRODUCTION PROJECT

	ITEM OF STUDY	UNIT	FISCAL YEAR													
			1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
II.	PROJECT PURPOSE															
1.1	Production of vaccine for measles/poliomyelitis in Brazil															
	A. Total production of vaccine for measles in Brazil	doses				9590290	19265000	12142062	17779079	19989557	9112200	11312020				
	B. Production of vaccine for measles from domestic vulks in Brazil	doses														
	C. Production of vaccine for measles from imported vulks in Brazil	doses														
	D. Total production of vaccine for poliomyelitis in Brazil	doses					600000	5929000	6286828	3912960	4173840	6072620	-	-	-	478825
	E. Production of vaccine for poliomyelitis from domestic vulks in Brazil	doses														
	F. Production of vaccine for poliomyelitis from imported vulks in Brazil	doses					600000	5929000	6286828	3912960	4173840	6072620				478825
1.2	Production of vulks for measles/poliomyelitis in Brazil															
	A. Production of vulks for measles in Brazil	liter														
	B. Production of vulks for poliomyelitis in Brazil	liter														
1.3	Amount of imported vaccine/vulks for measles/poliomyelitis in Brazil															
	A. Amount of imported vulks for measles in Brazil	liter														
	B. Amount of imported vaccine for measles in Brazil(million)	doses													-*	10,0
	C. Amount of imported vulks for poliomyelitis in Brazil	liter					72.5	60.6	65.6	89.85	55.6	315				
	D. Amount of imported vaccine for poliomyelitis in Brazil(million)	doses													55.0	65.0
1.4	Share of the domestic vaccine in Brazil															
	A. Share of domestic vaccine in total administered measles vaccine in Brazil															
	a-1. Amount of administered foreign measles vaccine (imported)	doses														
	a-2. Amount of administered measles vaccine in Brazil	doses														
	a-3. Share of domestic vaccine in total administered measles vaccine in Br	%														
	B. Share of domestic vaccine in total administered poliomyelitis vaccine in Br															
	b-1. Amount of administered foreign poliomyelitis vaccine (imported)	doses														
	b-2. Amount of administered poliomyelitis vaccine in Brazil	doses														
	b-3. Share of domestic vaccine in total administered poliomyelitis vaccine	%														
	C. Share of domestic vaccine in total vaccine production of Brazil															
	c-1. Share of domestic vaccine in measles vaccine production of Brazil	%														
	c-2. Share of domestic vaccine in poliomyelitis vaccine production of Brazil	%														
2.1	Inferior products rate in measles/poliomyelitis vaccine production in Brazil															
2.1.1	Inferior rate in measles vaccine production in Brazil															
	A. Inferior rate of SPF eggs in Brazil															
	a-1. No. of inferior SPF eggs in Brazil															
	a-2. No. of purchased SPF eggs in Brazil															
	a-3. Inferior rate of SPF eggs in Brazil	%														

Legend: - No cases

*no import/92

INDICATOR TABLE - 3 (3/5)

BIOLOGICALS PRODUCTION PROJECT

ITEM OF STUDY	UNIT	FISCAL YEAR													
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
B. Inferior rate of domestic vulks for measles in Brazil															
b-1. Amount of inferior vulks for measles made in Brazil	liter														
b-2. Amount of vulks for measles made in Brazil	liter														
b-3. Inferior rate of domestic vulks for measles in Brazil	%														
C. Inferior rate of imported vulks for measles in Brazil															
c-1. Amount of inferior imported vulks for measles in Brazil	liter														
c-2. Amount of imported vulks for measles in Brazil	liter														
c-3. Inferior rate of imported vulks for measles in Brazil	%														
D. Amount of imported vulks for measles in Brazil															
d-1. Amount of inferior imported vaccine for measles in Brazil	doses														
d-2. Amount of imported vaccine for measles in Brazil	doses														
d-3. Inferior rate of imported vaccine for measles in Brazil	%														
2.1.2 Inferior rate in poliomyelitis vaccine production in Brazil															
A. Inferior rate of imported vulks for poliomyelitis in Brazil															
a-1. Amount of inferior imported vulks for poliomyelitis in Brazil	liter	–	–	–	–	0	0	0	0	0	0	–	–	–	–
a-2. Amount of imported vulks for poliomyelitis in Brazil	liter	–	–	–	–	72.5	60.6	65.6	89.85	56.6	315	–	–	–	–
a-3. Inferior rate of imported vulks for poliomyelitis in Brazil	%	–	–	–	–	0	0	0	0	0	0	–	–	–	–
B. Amount of inferior imported vulks for poliomyelitis in Brazil															
b-1. Amount of inferior vulks for poliomyelitis made in Brazil	liter														
b-2. Amount of vulks for poliomyelitis made in Brazil	liter														
b-3. Inferior rate of domestic vulks for poliomyelitis in Brazil	%														
C. Inferior rate of imported vaccine for poliomyelitis in Brazil															
c-1. Amount of inferior imported vaccine for poliomyelitis in Brazil	doses														
c-2. Amount of imported vaccine for poliomyelitis in Brazil	doses														
c-3. Inferior rate of imported vaccine for poliomyelitis in Brazil	%														
2.2 No. of quality tests by type in vaccine production in Brazil															
2.2.1 No. of quality tests by type in measles vaccine production															
A. SPF eggs test															
B. Potency test															
C. Sterility test															
D. Moisture content test															
E. Protein content test															
F. Animal test															
G. Other tests															
2.2.2 No. of quality tests by type in poliomyelitis vaccine production															
A. Virus content test	–	–	–	–	–	–	18	81	60	36	36	54	–	–	–	15
B. Sterility test	–	–	–	–	–	–	7	27	18	12	12	17	–	–	–	2
C. Adventitious virus detective test	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
D. Marker test	–	–	–	–	–	–	3	3	3	3	3	3	–	–	–	
E. Animal test	–	–	–	–	–	–	7	27	18	12	12	17	–	–	–	2
F. Other tests (neuro-virus test, etc)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Legend : – No cases

INDICATOR TABLE - 4
BIOLOGICALS PRODUCTION PROJECT

(4/5)

	ITEM OF STUDY	UNIT	FISCAL YEAR													
			1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
III.	OUTPUTS															
1.1	Production of measles vaccine in FIOCRUZ															
	A. Total production of vaccine for measles in FIOCRUZ	doses			5046115	9890253	19268008	12145062	17779099	19985557	9112200	11312020	13768285	15177000	–	
	B. Production of vaccine for measles from domestic vulks in FIOCRUZ	doses				9126137	9126137	12145062	17779099	25825000	12040000	17845000	19135000	15200000	20790000	
	C. Production of vaccine for measles from imported vulks in FIOCRUZ	doses													–	
	D. Amount of imported vaccine for measles in FIOCRUZ	doses		15568500											4208450	
1.2	Production of vulks for measles in FIOCRUZ															
	A. A. Production of vulks for measles in FIOCRUZ	liter				1812	1812	3054	3122	3920	3472	2324	2492	2330	389	
	B. B. Amount of imported vulks for measles in FIOCRUZ	liter														
1.3	Production of vulks for measles in FIOCRUZ															
	A. Inferior rate of SPF eggs in FIOCRUZ															
	a-1. No. of inferior SPF eggs in FIOCRUZ					2347	2347	2400	4105	2353	1100	1706	1124	1700	2232	
	a-2. No. of purchased SPF eggs in FIOCRUZ					15247	15247	16000	24000	22100	18045	20510	17643	17000	15082	
	a-3. Inferior rate of SPF eggs in FIOCRUZ	%				7,5	7,5	15	17	11	6	8	7,5	10	12	
	B. Inferior rate of domestic vulks for measles made in FIOCRUZ															
	b-1. Amount of inferior vulks for measles made in FIOCRUZ	liter				86	147	0	63	189	105	105	100	85	10	
	b-2. Amount of vulks for measles made in FIOCRUZ	liter				1812	1812	3054	3122	3920	3472	2324	3400	2330	389	
	b-3. Inferior rate of domestic vulks for measles made in FIOCRUZ	%				5,4	5,2	0	2,4	8,1	3,4	7,5	3,0	4,0	3,0	
	C. Inferior rate of imported vulks for measles in FIOCRUZ															
	c-1. Amount of inferior imported vulks for measles in FIOCRUZ	liter														
	c-2. Amount of imported vulks for measles in FIOCRUZ	liter														
	c-3. Inferior rate of imported vulks for measles in FIOCRUZ	%														
	D. Inferior rate of imported vaccine for measles in FIOCRUZ															
	d-1. Amount of inferior imported vaccine for measles in FIOCRUZ	doses														
	d-2. Amount of imported vaccine for measles in FIOCRUZ	doses														
	d-3. Inferior rate of imported vaccine for measles in FIOCRUZ	%														
1.4	No. of quality tests by type in measles vaccine production in FIOCRUZ															
	A. SPF eggs test					144	69	111	84	132	54	126	75	138	117	84
	B. Potency test					148	268	202	256	222	294	134	178	198	–	56
	C. Sterility test					148	268	202	256	222	294	134	178	198	–	56
	D. Moisture content test					74	134	101	128	111	147	67	89	99	–	22
	E. Protein content test					–	–	–	–	–	–	–	–	–	–	–
	F. Animal test					144	69	111	84	132	54	126	75	138	–	84
	G. Other tests					74	134	101	128	111	147	67	89	99	–	22

Legend : – No cases

INDICATOR TABLE - 5
BIOLOGICALS PRODUCTION PROJECT

(5/5)

	ITEM OF STUDY	UNIT	FISCAL YEAR													
			1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
2.1	Production of poliomyelitis vaccine in FIOCRUZ															
	A. Total production of vaccine for poliomyelitis in FIOCRUZ	doses	-	-	-	-	600000	5929000	6286828	3912960	4173840	6072620	-	-	-	478825
	B. Production of vaccine for poliomyelitis from domestic vulks in FIOCRUZ	doses	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C. Production of vaccine for poliomyelitis from imported vulks in FIOCRUZ	doses					600000	5929000	6286828	3912960	4173840	6072620	-	-	-	478825
	D. Amount of imported vaccine for poliomyelitis in FIOCRUZ	doses														
2.2	Amount of imported vulks for poliomyelitis in FIOCRUZ															
	A. Amount of imported vulks for poliomyelitis in FIOCRUZ	liter	-	-	-	-	72,5	60,6	65,6	89,85	55,6	315	-	-	-	-
	B. Production of vulks for poliomyelitis in FIOCRUZ	liter	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.3	Inferior products rate in poliomyelitis vaccine production in FIOCRUZ															
	A. Inferior rate of imported vulks for poliomyelitis in FIOCRUZ															
	a-1. Amount of inferior imported vulks for poliomyelitis in FIOCRUZ	liter	-	-	-	-	0	0	0	0	0	0	-	-	-	-
	a-2. Amount of imported vulks for poliomyelitis in FIOCRUZ	liter	-	-	-	-	72,5	60,6	65,6	89,85	55,6	315	-	-	-	-
	a-3. Inferior rate of imported vulks for poliomyelitis in FIOCRUZ	%	-	-	-	-	0	0	0	0	0	0	-	-	-	-
	B. Inferior rate of domestic vulks for poliomyelitis made in FIOCRUZ															
	b-1. Amount of inferior vulks for poliomyelitis made in FIOCRUZ	liter	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	b-2. Amount of vulks for poliomyelitis made in FIOCRUZ	liter	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	b-3. Inferior rate of domestic vulks for poliomyelitis made in FIOCRUZ	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C. Inferior rate of imported vaccine for poliomyelitis in FIOCRUZ															
	c-1. Amount of inferior imported vaccine for poliomyelitis in FIOCRUZ	doses														
	c-2. Amount of imported vaccine for poliomyelitis in FIOCRUZ	doses														
	c-3. Inferior rate of imported vaccine for poliomyelitis in FIOCRUZ	%														
2.4	No. of quality tests by type in poliomyelitis vaccine production in FIOCRUZ															
	A. Virus content test	-	-	-	-	-	18	81	60	36	36	54	-	-	-	15
	B. Sterility test	-	-	-	-	-	7	27	18	12	12	13	-	-	-	2
	C. Adventitious virus detective test	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	D. Marker test	-	-	-	-	-	3	3	3	3	3	3	-	-	-	-
	E. Animal test	-	-	-	-	-	7	27	18	12	12	17	-	-	-	-
	F. Other tests (neuro-virus test, etc)	-	-	-	-	-	-	-	-			-	-	-	-	-

Legend : - No cases

RESULTS OF QUESTIONNAIRE SURVEY : JAPANESE EXPERTS

[EFFICIENCY]

1 Did the Japanese Government provide enough input for the measles/ poliomyelitis vaccine production Project?	Total	Yes		No		N/C
(i) measles						
a) As a whole	13	13	100%	0	0%	0
b)Was the machines/equipment/materials adequate?	13	13	100%	0	0%	0
c)Was the counterpart training in Japan adequate(in general)?	13	13	100%	0	0%	0
d) Was the technology transfer from Japan to Brazil adequate?	13	13	100%	0	0%	0
(ii) poliomyelitis	Total	Yes		No		N/C
a)As a whole	5	5	100%	0	0%	0
b) Was the machines/equipment/materials adequate?	5	5	100%	0	0%	0
c) Was the counterpart training in Japan adequate(in general)?	5	5	100%	0	0%	0
d) Was the technology transfer from Japan to Brazil adequate?	5	5	100%	0	0%	0
_ As vaccine production should be made in principle by consistent production plant from material to final products, overall technology transfer of production and quality control is desirable.						
2 Did the Brazilian Government provide enough input for the measles/ poliomyelitis vaccine production Project?	Total	Yes		No		N/C
(i) measles						
a) Are the facilities(space, utilities etc) adequate?	13	11	85%	0	0%	2
b) Did they provide enough budget for the Project?	13	7	54%	0	0%	6
c) Did they provide enough manpower for the Project?	13	11	85%	0	0%	2
(ii) poliomyelitis	Total	Yes		No		N/C
a) Are the facilities(space, utilities etc) adequate?	5	1	20%	3	60%	1
b) Did they provide enough budget for the Project?	5	0	0%	1	20%	4
c) Did they provide enough manpower for the Project?	5	3	60%	1	20%	1
3 Do you think that the vaccination against measles/poliomyelitis was practiced by the Brazilian Government effectively after the Japanese cooperation for the Project?	Total	Yes		No		N/C
(i) measles	13	9	69%	0	0%	4
(ii) poliomyelitis	5	2	40%	1	20%	2
4 Do you think that the implementing schedule of Biologicals Production Project against measles/poliomyelitis was adequate?						
(i) measles	13	12	92%	0	0%	1
(ii) poliomyelitis	5	4	80%	1	20%	0
5 Do you think that the Japanese cooperation was given enough support from the other sections of M.O.H.?						
(i) measles	13	8	62%	0	0%	5
(ii) poliomyelitis	5	2	40%	0	0%	3
6 Do you think that the Japanese cooperation was implemented with enough linkage with the other related project of related organization?						
(i) measles	13	0	0%	2	15%	11
(ii) poliomyelitis	5	0	0%	1	20%	4

Legend: N/C=No comment

[EFFECTIVENESS]

7 Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?	Total	Yes		No		N/C	
(i) measles	13	11	85%	0	0%	2	
(ii) poliomyelitis	5	1	20%	3	60%	2	
8 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control of the measles/poliomyelitis vaccine production?	Total	Yes		No		N/C	
(i) measles	13	11	85%	0	0%	2	
(ii) poliomyelitis	5	4	80%	0	0%	1	
9 How do you evaluate skill / knowledge of counterparts just after the cooperation with Japanese experts and your current one?							
(i) measles	Total	Yes		No		N/C	
a) Overall	13	13	100%	0	0%	0	
b) Understanding of vaccine production	13	13	100%	0	0%	0	
c) Simple device handling	13	12	92%	0	0%	1	
d) Machine operation	13	8	62%	0	0%	5	
e) Machine maintenance	13	6	46%	0	0%	7	
f) Understanding of the methods of quality test	13	12	92%	0	0%	1	
g) Keeping and distribution of vaccine	13	9	69%	0	0%	4	
(ii) poliomyelitis	Total	Yes		No		N/C	
a) Overall	5	4	80%	1	20%	0	
b) Understanding of vaccine production	5	3	60%	2	40%	0	
c) Simple device handling	5	4	80%	0	0%	1	
d) Machine operation	5	4	80%	0	0%	1	
e) Machine maintenance	5	2	40%	0	0%	3	
f) Understanding of the methods of quality test	5	5	100%	0	0%	0	
g) Keeping and distribution of vaccine	5	3	60%	0	0%	2	
10 Were the skill/knowledge of counterparts enough for technology transfer?	Total	Yes		No		N/C	
(i) measles	13	8	62%	0	0%	5	
(ii) poliomyelitis	5	4	80%	1	20%	0	
11 How do you evaluate skill / knowledge just after the cooperation with Japanese experts?	Total	High		Low		Mod.	N/C
(i) measles							
a) Overall	13	5	38%	0	0%	8	0
b) Understanding of vaccine production	13	5	38%	0	0%	8	0
c) Simple device handling	13	3	23%	1	8%	8	1
d) Machine operation	13	3	23%	2	15%	5	3
e) Machine maintenance	13	2	15%	3	23%	4	4
f) Understanding of the methods of quality test	13	5	38%	1	8%	7	0
g) Keeping and distribution of vaccine	13	5	38%	0	0%	5	3

Legend: N/C=No comment Mod.=Moderate

(ii) b) poliomyelitis	Total	High		Low		Mod.	N/C
a) Overall	5	1	20%	0	0%	3	1
b) Understanding of vaccine production	5	1	20%	0	0%	3	1
c) Simple device handling	5	1	20%	0	0%	3	1
d) Machine operation	5	2	40%	1	20%	1	1
e) Machine maintenance	5	1	20%	0	0%	1	3
f) Understanding of the methods of quality test	5	3	60%	1	20%	0	1
g) Keeping and distribution of vaccine	5	1	20%	0	0%	1	3

Legend: N/C=No comment Mod.=Moderate

[IMPACT]

12 Do you think that Japanese cooperation for the Biologicals Production Project contributed to the improvement of the technology of other kind vaccine production in Brazil?	Total	Yes		No		N/C
(i) measles	13	10	77%	0	0%	3
(ii) poliomyelitis	5	4	80%	0	0%	1
13 Have the vaccines supplied by the project contributed to the improvement of preventive measures against measles/poliomyelitis in Brazil	Total	Yes		No		N/C
(i) measles	13	12	92%	0	0%	1
(ii) poliomyelitis	5	4	80%	0	0%	1
14 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to reduce the foreign financial burden of Brazil?						
(i) measles	13	7	54%	0	0%	6
(ii) poliomyelitis	5	1	20%	1	20%	3
15 Do you think that technology transfer of Biologicals Production by Brazilian counterparts without any foreign aids is possible in Brazil?						
(i) measles	15	7	47%	2	13%	4
(ii) poliomyelitis	5	0	0%	3	60%	2
16 Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?						
(i) measles	13	11	85%	0	0%	2
(ii) poliomyelitis	5	2	40%	1	20%	2
17 Were there any other unexpected social/economical contribution by the Japanese cooperation for the Biologicals Production Project?						
(i) measles	13	3	23%	1	8%	9
(ii) poliomyelitis	5	2	40%	0	0%	3
18 Have you had any negative impacts from the Japanese cooperation for the Biologicals Production Project?						
(i) measles	13	0	0%	8	62%	5
(ii) poliomyelitis	5	0	0%	3	60%	2

Legend: N/C=No comment Mod.=Moderate

RESULTS OF QUESTIONNAIRE : COUNTERPARTS

[EFFICIENCY]

	Total	Yes		No		N/C
1 Did the Japanese Government provide enough input for the measles/poliomyelitis vaccine production Project?						
(i) measles						
a) As a whole	33	28	85%	0	0%	5
b) Was the machines/equipment/materials adequate?	33	31	94%	0	0%	2
c) Was the counterpart training in Japan adequate(in general)?	33	24	73%	0	0%	9
d) Was the technology transfer from Japan to Brazil adequate?	33	28	85%	1	3%	4
e) Was the level of technology transferred from Japan to Brazil	33	27	82%	1	3%	5
(ii) poliomyelitis						
a) As a whole	19	9	47%	1	5%	9
b) Was the machines/equipment/materials adequate?	19	9	47%	1	5%	9
c) Was the counterpart training in Japan adequate(in general)?	19	10	53%	0	0%	9
d) Was the technology transfer from Japan to Brazil adequate?	19	10	53%	1	5%	8
e) Was the level of technology transferred from Japan to Brazil	19	9	47%	1	5%	9
2 Did the Brazilian Government provide enough input for the measles/poliomyelitis vaccine production Project?	Total	Yes		No		N/C
(i) measles						
a) As a whole	33	28	85%	3	9%	2
b) Are the facilities(space, utilities etc) adequate?	31	23	74%	8	26%	0
c) Did they provide enough budget for the Project?	32	23	72%	1	3%	8
d) Did they provide enough manpower for the Project?	33	27	82%	1	3%	5
(ii) poliomyelitis						
a) As a whole	20	11	55%	1	5%	8
b) Are the facilities(space, utilities etc) adequate?	20	14	70%	3	15%	3
c) Did they provide enough budget for the Project?	20	9	45%	1	5%	10
d) Did they provide enough manpower for the Project?	20	13	65%	1	5%	6
3 Do you think that the vaccination against measles/poliomyelitis was practiced by the Brazilian Government effectively after the Japanese cooperation for the Project?	Total	Yes		No		N/C
(i) measles	32	23	72%	0	0%	9
(ii) poliomyelitis	21	13	62%	2	10%	6
4 Do you think that the Japanese cooperation was given enough support from the other sections of M.O.H.?	33	17	52%	0	0%	16
5 Do you think that the Japanese cooperation was implemented with enough linkage with the other related project of related organization?	30	4	13%	2	7%	24

[EFFECTIVENESS]

	Total	Yes		No		N/C
6 Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?						
(i) measles	33	25	76%	6	18%	2
(ii) b) poliomyelitis	19	8	42%	5	26%	6
7 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control of the measles/poliomyelitis vaccine production?	Total	Yes		No		N/C
(i) measles	33	33	100%	0	0%	0
(ii) poliomyelitis	21	17	81%	0	0%	4
8 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to implement the National Vaccination Programme?	33	31	94%	0	0%	2

9 How do you evaluate your skill and knowledge just after the cooperation with Japanese experts and your current one?	After cooperation						
	Total	High		Low		Mod.	N/C
a) Overall	30	7	23%	2	7%	16	5
b) Understanding of vaccine	30	8	27%	1	3%	18	3
c) Simple device handling	31	18	58%	0	0%	9	4
d) Machine operation	28	4	14%	1	4%	13	10
e) Machine maintenance	27	0	0%	3	11%	6	18
f) Understanding of the methods of quality test	30	14	47%	2	7%	7	7

Legend: N/C=No comment, Mod.=Moderate

	Current						
	Total	High		Low		Mod.	N/C
a) Overall	23	14	61%	1	4%	8	0
b) Understanding of vaccine	22	13	59%	1	5%	8	0
c) Simple device handling	22	17	77%	1	5%	4	0
d) Machine operation	16	10	63%	1	6%	5	0
e) Machine maintenance	11	2	18%	3	27%	6	0
f) Understanding of the methods of quality test	19	14		1	5%	4	0
10 Were you satisfied with the training skill/knowledge of Japanese experts?	Total	Yes		No		N/C	
a) Scientific Subject	33	26	79%	1	3%	6	
b) Technical/Practical Subject	33	28	85%	0	0%	5	
11. Have you taken a counterpart training in Japan?	33	9	27%	24	73%	0	
12 Did you have any problems, when you start your job after training?	18	5	28%	4	22%	9	
13 Were the facilities (space, utilities etc.) adequate during the Japanese cooperation?	23	13	57%	4	17%	6	
14 Have the production equipment/machines been sufficiently provided during the Japanese cooperation?	29	25	86%	0	0%	4	
15 Have the production equipment/machines been adequately maintained during the Japanese cooperation?	28	22	79%	1	4%	5	

[IMPACT]

	Total	Yes		No		N/C
16. Do you think that Japanese cooperation for the Biologicals Production Project contributed to the improvement of the technology of other kind vaccine production in Brazil?	29	15	52%	2	7%	12
17 Have the vaccines supplied by this Project contributed to the improvement of preventive measures against measles/poliomyelitis?						
(i) measles	32	29	91%	0	0%	3
(ii) poliomyelitis	20	14	70%	0	0%	6
18 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to reduce the foreign financial burden of Brazil?	32	10	31%	2	6%	20
19 Have you ever had a chance to transfer your technology to the staffs of other biologicals production system?	33	22	67%	1	3%	10
20 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of vaccination system in Brazil?	33	30	91%	0	0%	3
21 Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?						
(i) measles	32	20	63%	2	6%	10
(ii) poliomyelitis	21	7	33%	6	29%	8
22 Do you think that Japanese international contribution to the Biologicals Production is broadly recognized in Brazil?	32	19	59%	4	13%	9
23 Have you had any negative impacts from the Japanese cooperation for the Biologicals Production Project?	33	0	0%	32	97%	1
24 Were there any other social/economical contribution by the Japanese cooperation for the Biologicals Production Project?	33	15	45%	3	9%	15

[SUSTAINABILITY]

	Total	Yes		No		N/C
25 Does the Brazilian Government have the consistent policy for the Biologicals Production Project to continue its activities of measles/ poliomyelitis vaccine production after the Japanese cooperation?						
(i) measles	33	21	64%	3	9%	9
(ii) poliomyelitis	20	10	50%	3	15%	7
26. Does the measles/poliomyelitis vaccine production Project have enough resources to continue its activities?	Total	Yes		No		N/C
(i) measles	32	9	28%	19	59%	4
Equipments/machines	19	11				
Spare parts	19	19				
Materials	19	15				
Facilities	19	8				
Operation system	19	4				
Staff	19	14				
Budget	19	8				

	Total	Yes		No		N/C
(II) poliomyelitis	19	1	5%	7	37%	11
Equipments/machines	7	2				
Spare parts	7	4				
Materials	7	2				
Facilities	7	3				
Operation system	7	1				
Staff	7	5				
Budget	7	2				
27 Have the equipments/machines/spare parts for the Project been sufficiently provided after the Japanese cooperation?	32	18	56%	9	28%	5
28 Have the equipments/machines/spare parts for the Project been adequately maintained after the Japanese cooperation?	33	8	24%	20	61%	5
29 Do you think that this measles/poliomyelitis vaccine production Project will make enough benefit to adopt self-supporting system?						
(i) measles	31	18	58%	2	6%	11
(ii) poliomyelitis	19	8	42%	2	11%	9
30 Do you think that this poliomyelitis vaccine production Project will develop into consistent national production plant without import of foreign vulks?	23	5	22%	8	35%	10
31 Do you have an internal training system in FIOCRUZ to transfer the technology for biologicals production among staffs?	32	10	31%	16	50%	6
32 Do you think that you have mastered enough technology to maintain the activities for this Project?	32	23	72%	4	13%	5
33 Are you satisfied with your current situation in Biologicals Production Project?	33	13	39%	17	52%	3
Salary is not enough(Negative reason)	17	9	53%			
Lack of opportunities to improve your technology(Negative reason)	17	15	88%			
Others (Negative reason)	17	3	18%			
34. Do you plan to continue to work for this Biologicals Production Project?	32	29	91%	0	0%	3

[RELEVANCE]

	Total	Yes		No		N/C
35 Have there been any major policy changes relating to the national vaccine production in Brazil?	32	19	59%	2	6%	11
36 Is the purpose of the project, to establish self-producing system of measles/ poliomyelitis vaccines on a large scale, still relevant to the current needs of your country?						
(i) measles	33	30	91%	0	0%	3
(ii) poliomyelitis	20	15	75%	0	0%	5
37 Do you think that detailed plan of technology transfer and cooperation between Japan and Brazil were adequately made after enough consultation with Brazilian counterparts?	32	17	53%	2	6%	13
38 Do you think that Japanese technology transfer and cooperation were made opportunely during the Project?	31	25	81%	0	0%	6

Legend: N/C=No comment, Mod.=Moderate

RESULT OF QUESTIONNAIRE: BENEFICIARIES

[EFFICIENCY]

1 Did the Brazilian Government established appropnate vaccination system against measles/poliomyelitis during the Japanese cooperation?	Total 11	Yes 10	91%	No 0	0%	N/C 1
(i) measles						
a) Are the facilities for measles vaccination enough?	11	7	64%	1	9%	3
b) Did they provide enough budget for measles vaccination?	11	6	55%	0	0%	5
c) Did they provide enough manpower for measles vaccination?	11	6	55%	0	0%	5
(ii) poliomyelitis	Total	Yes		No		N/C
a) Are the facilities for poliomyelitis vaccination enough?	10	9	90%	0	0%	1
b) Did they provide enough budget for poliomyelitis vaccination?	11	9	82%	0	0%	2
c) Did they provide enough manpower for poliomyelitis vaccination?	11	9	82%	0	0%	2

[EFFECTIVENESS]

2 Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?	Total	Yes		No		N/C
(i) measles	10	5	50%	3	30%	2
(ii) poliomyelitis	10	3	30%	3	30%	4
3 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control technology of measles/poliomyelitis vaccine?	Total	Yes		No		N/C
(i) measles	11	10	91%	0	0%	1
(ii) poliomyelitis	11	10	91%	0	0%	1

[IMPACT]

4 Have the vaccines supplied by this Biologicals Production Project contributed to the improvement of preventive measures against measles/ poliomyelitis?	Total	Yes		No		N/C
(i) a) measles	11	9	82%	0	0%	2
(ii) poliomyelitis	10	6	60%	1	10%	3
5 Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?						
(i) measles	11	8	73%	1	9%	2
(ii) poliomyelitis	10	8	80%	0	0%	2
6 Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines at a moderate price?						
(i) measles	10	3	30%	0	0%	7
(ii) poliomyelitis	9	3	33%	0	0%	6
7 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of preventive measures against measles/poliomyelitis in Brazil?						
(i) measles	11	9	82%	0	0%	2
(ii) poliomyelitis	10	7	70%	0	0%	3
8 Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of vaccination system in Brazil	11	8	73%	1	9%	2
9 Were there any other social/economical contribution by the Japanese cooperation for the Biologicals Production Project?	10	6	60%	0	0%	4
10 Do you think that Japanese international contribution to the Biologicals Production is broadly recognized in Brazil?	11	5	45%	3	27%	3
11 Have you had any negative impacts from Japanese cooperation for the Biologicals Production Project?	11	0	0%	6	55%	5

Legend : N/C = No comment

[SUSTAINABILITY]

	Total	Yes		No		N/C
12 Does the Brazilian Government have the consistent policy for the Biologicals Production Project to continue its activities of measles/ poliomyelitis vaccine production?						
(i) measles	11	8	73%	2	18%	1
(ii) poliomyelitis	8	4	50%	1	13%	3
13 Have the Brazilian Government established pertinent vaccination system for measles/poliomyelitis such as the distribution and keeping of vaccines and inoculating persons in need of ?						
(i) measles	11	10	91%	0	0%	1
(ii) poliomyelitis	11	11	100%	0	0%	0

[RELEVANCE]

	Total	Yes		No		N/C
14 Is the purpose of the project, to establish self-producing system of vaccines on a large scale, still relevant to the current needs of your country?						
(i) measles	11	9	82%	0	0%	2
(ii) poliomyelitis	11	7	64%	2	18%	2
15 Do you think that Japanese technology transfer and cooperation were made opportunely during the Project?						
(i) measles	11	6	55%	0	0%	5
(ii) poliomyelitis	11	6	55%	0	0%	5

Legend : N/C = No comment

[SUSTAINABILITY]

	Total	Yes		No		N/C	
19 Have there been any policy change in measles/poliomyelitis vaccine production by Brazilian Government after the Japanese cooperation?							
(i) measles	13	0	0%	4	31%	9	
(ii) poliomyelitis	5	1	20%	1	20%	3	
20 Does the measles/poliomyelitis vaccine production Project have enough resources to continue its activities?							
(i) measles*	13	9	69%	0	0%	4	
(ii) poliomyelitis*	5	1	20%	2	40%	2	
21 Do you think that this measles/poliomyelitis vaccine production Project will make enough benefit to adopt self-supporting system?							
(i) measles	13	8	62%	0	0%	5	
(ii) poliomyelitis	5	2	40%	0	0%	3	
22 Do you think that this poliomyelitis vaccine production Project will develop into consistent national production plant without import of foreign vulks?							
(ii) poliomyelitis	5	2	40%	1	20%	2	
23 Do you think that the establishment of an internal training system in Brazil without any foreign aids to transfer the technology for Biologicals Production?	Total	Exist		Not Exist		No	N/C
(i) measles	13	4	31%	6	46%	1	2
(ii) poliomyelitis	5	1	20%	1	20%	3	0

[RELEVANCE]

	Total	Yes		No		N/C	
24 Have there been any major policy changes relating to the national vaccine production in Brazil?							
(i) measles	13	0	0%	4	31%	9	
(ii) poliomyelitis	5	1	20%	1	20%	3	
25 Is the purpose of the project, to establish self-producing system of measles/poliomyelitis vaccines on a large scale, still relevant to the current needs of your country?							
(i) measles	13	12	92%	0	0%	1	
(ii) poliomyelitis	5	2	40%	2	40%	1	
26 Do you think that detailed plan of technology transfer and cooperation between Japan and Brazil were adequately made after enough consultation with Brazilian officials/counterparts?							
(i) measles	13	13	100%	0	0%	0	
(ii) b) poliomyelitis	5	3	60%	0	0%	2	
27 Do you think that Japanese technology transfer and cooperation were made opportunely during the Project in the light of project purpose?							
(i) measles	13	13	100%	0	0%	0	
(ii) poliomyelitis	5	3	60%	0	0%	2	

Legend: N/C=No comment

Interview Survey Results

1. インタビュー調査対象者

Waldyr Mendes Arcoverde (Official)
(Organizacao Pan-Americana de Saude)
(以前の衛生大臣で本ワクチン製造プロジェクトに関して大きな助力をした。)

日時　11/Nov./'94　9:00
場所　Organizacao Pan-Americana de Saude (Brasilia)
インタビュー内容

(案件の効率性)
・このプロジェクトほど成功を収めた公的プロジェクトはない。
・政治的協力関係と技術的水準の高さが理由となって所期の目的をはるかにこえたプロジェクトとなった。
・技術移転ということでは細胞増殖分野の成果があげられる。
・ポリオワクチンの一貫製造がとりやめになった理由は、近い将来にポリオの撲滅がされるとみられたためである。もしも撲滅された場合、ワクチン生産の必要性がなくなり、投資効果がなくなる。また、ワクチン製造のためのサルの数に限界があった。
・Butantan研究所はサンパウロ州の管轄下にあり、FIOCRUZは中央政府の管轄下にあり、相互に独立して活動していた。これら二つの研究所は相互にライバルとして競い合っていたといえる。Butantan研究所が行き詰まったのは細胞に菌を植えつける技術に問題があったのではないか。

(案件の効果)
・細胞培養の技術移転が他のワクチンのハイレベルの研究に役立ったと思う。
・他のラテンアメリカ諸国からFIOCRUZに研修に来ている。
・特に重要な技術移転と他の分野への波及効果があったことは強調しておきたい。
・本プロジェクトのマイナスの効果は全く知らない。
・本プロジェクトの予算、スタッフ、スケジュール等での問題点は全くない。今後もこのプロジェクトのように技術協力をしてもらいたい。

(自立発展性)
・プロジェクト実施中に政策変更はなかった。
・ベルギーから輸入されたポリオワクチンの品質が良くなかったこと、またポリオ撲滅キャンペーン中に必要量を輸入出来なかったことなどから自国生産を考えた。しかし、ポリオ撲滅がされれば生産は不要となる可能性があった。

(課題)
・今後の課題として継続的な技術協力を繰り返して欲しい。

2. インタビュー調査対象者

Nelson De Oliveira (Official)
(ABC-Ministerio das Relacoes Exterores)

日時　　11/Nov./'94　　14:30
場所　　ABC-Ministerio das Relacoes Exterores (Brasilia)
インタビュー内容
（協力体制について）
・ 現在のABC (Brasilian Cooperation Agency)は二国間、多国間協力や後進国への援助を行なっている。ABCの前身として1987年まで企画省の管轄下にSUBINがあったが1987年にABCが設立された。
・ABCは後進国へワクチン製造に関する技術移転を行なっている。例として第３国研修により麻疹ワクチン製造の技術移転を行なっている。
・ブラジルはJICA と共にボリビア、パラグアイ、アルゼンチンでの技術協力の評価を行なおうとしている。
・ABCが出来たことによって日本との国際協力に大きな違いはない。理由として日本側のプロジェクト採択の評価が１年単位で行なわれていることがあげられる。この期間がもっと短ければより多くのプロジェクト管理ができるようになる。
（目標達成度）
・理解している範囲内では麻疹ワクチン製造、ポリオワクチン品質管理については日本の技術移転と国、州の努力により確立されたと考える。他の国へのブラジル国からの技術移転も可能となったと思う。しかし、新しい技術については日本からの技術移転は必要と考える。ただし、現在は新しい日本への技術協力の要請は出していない。
（今後の技術協力について）
・本プロジェクトに関し1990年の日本のアフターケア調査以外に日本との技術協力の要請は今までのところない。しかし今後フォローアップの要請が出る可能性はある。
・日本に対する要請は多い。優先分野（環境、農業、衛生、エネルギー、交通）を決めて日本政府と協議の上、要請している。技術移転、日本での研修、機材供与がバランスして良いプロジェクトとなる。

3.　インタビュー調査対象者
Joao Batista Risi Jr. (Official)
(Ministerio da Saude)
（現衛生省技術科学局長、元衛生省基本行動局長）
Rita Brossard (Beneficiary)
(Ministerio da Saude)
Amaro Luiz Alves (Beneficiary)
(Ministerio da Saude)
日時　　11/Nov./'94　　16:00
場所　　Ministerio da Saude (Brasilia)
インタビュー内容
（ワクチン政策について）
・衛生省には国家ワクチンプログラム（２０種類）を実施する責任がある。ポリオ、B型

肝炎ワクチンは輸入している。破傷風については間もなく自給可能とみられる。
・本プロジェクト当時のポリオワクチンに関する最大のプロジェクト目的は品質管理であり、その目的は達せられたと思う。ただし、当時は生産そのものが品質管理という考え方であった。本プロジェクトは工業化による大量生産は目的としていなかった。ポリオ撲滅運動が効を奏したため、ポリオワクチンの生産は必要ないと考えるようになった。
・国家ワクチンプログラムは1980年以降、今日まで続けられている。ポリオについては年２回、５才以下の子供に投与している。使用量は年間6000万ドーズである。麻疹については1973-1991年まであまり積極的に投与がされなかった。1991年以降、15才以下を対象に投与されており、90% 以上の投与率であり、今後もこの活動は続けられる。
・国家ワクチン自給プログラムは1985年以降開始され、連邦政府が衛生省を通じて各研究所に生産開発を依頼している。民間資本はワクチン生産にあまり興味を示していない。現在は衛生省が研究所に投資し、製品を購入し、国内に配布している。
・自国生産ワクチンの国際価格比較は困難である。しかし、必要量を輸入により調達することは困難であり、自国生産はその点でメリットがある。
・ワクチンは現在、法律により無料とされている。
・ワクチン生産の国際協力としてはフランスの技術協力もある。
・ワクチン生産に関する国際協力機関として汎米衛生協力機構がある。この組織はWHOのアメリカ出先機関であり、南米諸国で必要なワクチンをその地域内の先進国であるメキシコ、ブラジルで生産する方針が示されている。ブラジルがワクチン生産の拠点として位置づけられた理由として、日本の協力によるFIOCRUZの技術が評価されたことは疑いがない。
（案件の効果）
・ワクチン生産の周辺技術がよくないということは聞いていない。
・日本の技術協力はワクチンの品質管理について大きな貢献をしたと思う。FIOCRUZ以外にも同様の手法により他のワクチン製造を行なうようになった。特に1981年に設立された品質管理研究所スタッフは日本で研修を受けブラジルのために大きな貢献をしたと思う。また、麻疹のワクチン製造技術は黄熱病等のワクチン製造に利用されたと思う。
・麻疹の場合は95%の接種率が必要とされる。人数では年間350万人の子供に対して投与する必要がある。これまでの経緯では1980 年代になって死亡率が減少し、1991年の大キャンペーンにより、さらに大幅に減少した。1980年代までは輸入ワクチンによっていたが、1984年から国産化が始まり供給量が増えたため多くの幼児に接種できるようになった。しかし大きな子供の麻疹がはやったために1991年から15才以下の子供に接種するようになった。

4. インタビュー調査対象者

Rita Brossard (Beneficiary)
(Ministerio da Saude)
(小児科医)
Amaro Luiz Alves (Beneficiary)
(Ministerio da Saude)

（プロジェクト実施当時、衛生局企画部）
Dr. Suzana Machado De Avila (Beneficiary)
(Ministerio da Saude)
日時　12/Nov./'94　17:00
場所　Ministerio da Saude (Brasilia)
インタビュー内容
（ワクチン投与状況）
・1978年頃はワクチンは無料であったが量が少なく、常に２～３ケ月待たされ、医者が手数料をとって接種していた。品質管理の点で問題があったと思われる。現在は州の法律による衛生局と保健所、病院のみが接種できるようになった。
・ポリオの場合、投与方法が簡単（経口）であり、ブラジル国内での投与の地域的不平等は生じないといえる。麻疹の場合、注射によるため、地域的投与の不平等は起きる可能性はある。
・ポリオ撲滅キャンペーンでは国家ワクチンデーとしてお祭りのような状況になり、ブラジルでは成功したといえる。
・1985年以前、全員に接種ができなかったのは量の問題ではなく、政治的な意向が弱かったせいと思う。ワクチン接種率は実施機関の能力によるところが大きいのではないか。
・ワクチンの運搬方法は1973年の国家ワクチンプログラム制定以後、少しづつよくなってきた。汎米衛生協力機構の大きな協力を得てコールドチェーン、器具、コンテナーなどが少しづつ開発されてきた。
・ワクチンのキャンペーン時に配布の問題は生じなかった。
（案件の効果）
・このプロジェクトは衛生政策の改善に寄与したと思う。技術移転に関しては優れた成果をあげたと思う。とくにこのプロジェクトは初期、中期、後期の作業すべてをカバーしている点がよかったといえる。さらにこのプロジェクトは他の多くの分野に影響を及ぼしたと思う。カウンターパートは日本での研修により成長し、また、文化的、社会的にも影響を受けたといえる。

5.　インタビュー調査対象者
Garry Soares De Lima (Official)
(Ministerio do Meio Ambiente e da Amazonia Legal)
（当時、SUBIN（国際経済協力局）の海外技術担当）
日時　12/Nov./'94　9:30
場所　Ministerio da Saude (Brasilia)
インタビュー内容
（プロジェクト形成について）
・SUBINのコーディネーターとして、各方面からの国際技術要請を実施機関の能力、カウンターパート等の可能性、技術的ニーズ等の面から評価し、選定する役割を担当していた。本プロジェクトは国家開発計画との整合性をもっており、各省にある国際関係部局との協力の上で日本側との交渉が行なわれた。日本側の受諾の後、SUBIN と衛生省の国

際課とFIOCRUZとが協力してプロジェクトを進めていくことになった。
・当時の国家開発プランの中では農業、衛生、教育、科学技術などが高いプライオリティを与えられていた。本プロジェクトは衛生省の中で高いプライオリティを持っていた。1980年に全国ワクチンキャンペーンが実施された際にこのようなプライオリティが決定していた。同時期にFIOCRUZからも要請があった。
・現在は企画省のSUBINはなくなり、外務省のABCが案件の評価を行なうようになった。また、各省の国際課もなくなり、各省が直接ABCと交渉するようになった。案件の評価は各分野のコンサルタントに依頼している。これらコンサルタントは個人契約によっており、ABCの中で常に仕事をしている。
・外国との技術協力プロジェクトの推進は州のレベルでもでき、BUTANTAN研究所は外国とのワクチン生産に関する技術協力を進めた。ただし、SUBINとABCは同分野で別々に技術協力が行なわれないようにチェックする努力はしていた。理想的には２つの技術協力がプラスに相乗効果が出るとよいと考えている。
・BUTANTAN研究所の場合はイタリア機関との協定であって政府間協力ではなかった。

6.　インタビュー調査対象者

Dr. Fernando Jose Pereira Gomez (Professional)
(Medico)
（元ブラジル衛生財団伝染病学部主任、麻疹ワクチンの野外試験を実施）

日時　22/Nov./'94　9:30
場所　Rua Roberto Dias Lopes (Rio de Janeiro)

インタビュー内容
(ワクチン投与状況)
・現在麻疹ワクチンの必要量3000万ドーズ/年に対し自国内生産量は1500万ドーズ/年である。ポリオワクチンは年8000万ドーズ必要である。ブラジルでは原液から年2000万ドーズを製品化している。麻疹のワクチンが不足しているのは、以前は５才以下の子供を対象としていたのが最近は１５才以下の子供に対象を広げたためである。麻疹の不足分は輸入に頼っている。
・不足に対する対応方策として麻疹については少しづつ生産量をあげていくことが考えられる。一方、ポリオに関しては生産コストに問題があり、国の予算づけが難しいことから原材料からの一貫生産化はない。またポリオの発生が減っていることから新たな施設設備投資がしにくい。
・麻疹については大規模予防プログラムが終ればワクチン必要量は少なくてすむようになる。
・ポリオの場合は病院の連携網ができており、発生の際にはすぐ対応ができるようになっている。
・外国へのワクチンの輸出については黄熱病のワクチン輸出体制は確立されている。
・現在、ブラジルは中南米における黄熱病、狂犬病のワクチン生産のセンターとなっているが、将来的には他の分野にも広げていきたい。
・今後も日本とは研修や他分野での技術協力が考えられる。

7. インタビュー調査対象者

Dr. Maulory C. Cabral (Professional)
(Instituto de Microbiologia/UFRJ)
Dr. Raimundo Diogo Machado

日時　22/Nov./'94　14:20

場所　Instituto de Microbiologia/UFRJ (Rio de Janeiro)

インタビュー内容

(案件の効果)

・本プロジェクトは広い分野でのインパクトが有ったと思う。とくに保健衛生の分野では外国に依存する割合が減って自立の力がついた。

・最近、麻疹、ポリオの発生が少ないがこれは本プロジェクトの影響と思われる。

・ワクチン生産品質管理能力の向上と結果としての品質向上があげられる。

・大学微生物学部とプロジェクト関係者との交流が盛んとなった。

・他のワクチンの生産における品質管理技術の向上にも役立っていると思う。

・また、第3国研修にも役立ったといえる。

(大学との交流について)

・FIOCRUZの職員が大学に研究員として来ている。大学の先生をFIOCRUZに派遣している。またFIOCRUZが大学に委託研究を出すこともある。大学とBUTANTAN研究所との交流はない。

・大学からみるとFIOCRUZは麻疹ワクチン製造に関し、細胞培養の効率の点や微生物に関する知識が少し低いのではないかと思われる。また最終段階での製品化技術と貯蔵技術が不足しているというううわさもある。

・FIOCRUZは技術面では強いが理論面が弱いため各プロセス毎に問題解決ができる人材の育成が重要と思われる。大学とFIOCRUZとの交流はめざす必要がある。大学とFIOCRUZとの交流のメリットはFIOCRUZには機材があり、大学には知識があるということだと思う。

(ワクチン生産能力について)

・ワクチン生産量向上はFIOCRUZのみで技術的には十分可能であろうが、運営面や政治的面でどうか。

・BUTANTAN研究所とFIOCRUZとでは報告書しかみていないが技術面、生産能力面で大きく変らないのではないか。

・ブラジル国のワクチン生産能力は黄熱病、狂犬病に関してはトップレベルにあると思う。他のワクチンもそれなりのレベルにあると思う。

・周辺国を含めた南米地域に技術交流を深めていくための最初のステップとしては政治的協力が重要である。第3国研修のようなものを行なっても、研修生が自国に戻っても機材がなく何も出来ないという現象が起こるなどの問題はある。

8. インタビュー調査対象者

Dr. Fernando Lopez (Counterpart)
(Bio-Manguinhos FIOCRUZ)
(当時は実験動物ラボの主任。日本での研修経験を有する。)

日時　23/Nov./'94　9:15

場所　　FIOCRUZ (Rio de Janeiro)

インタビュー内容

(実施効率性)

・日本側からの支援については全般的な問題はなかった。技術移転については申し分なかった。また、プロジェクトの実施タイミングについてもブラジルの現状からみて適切な時期であったといえる。

・ブラジル側からの支援も最低量はあったが、自分たちの知識が不十分だったために要請内容も不十分だったといえる。

・修得した技術知識は他の方面に生かされている。

(目標達成度)

・自分たちがもう少し技術的に高ければもっと技術移転を効果的に受け入れることができたと思う。また、もっと高い技術研修を行なうことができたと思う。

・初期に派遣された専門家は自分たちの必要とした技術を持っていたが、アフターケア時の専門家は自分たちの欲しい技術 (Freeze Dryなど) をもっていなかったようだ。

・施設のメンテナンス、管理技術は自分達で十分できるように修得した。

・日本からの機材については製品が特注なので置き換えやスペアパーツの入手が難しい。また、マニュアルが全て日本語で困った。輸入する機材については現地サービスの重視の視点が必要なのではないか。導入したコンピューターの機能は高いが全てのマニュアルは日本語で使用できなかった。日本の専門家に聞いても専門外ということで断られた。

・死亡、転職、病気等の理由で研修を受けた経験のある人材が少なくなっている。若い人たちに研修の機会を与えて欲しい。

・ワクチン製造技術に関しても新しい技術を導入したい。機材についても既に10年もたっているので新しいものを取り入れたい。

(今後の技術協力について)

・本プロジェクトでは技術面、精神面で良い影響をうけた。日本の持っている新しい技術は必要と思う。商業的にみれば日本からのワクチン輸入はコストが高くなるため、FIOCRUZとのワクチンの生産連携をすることが考えられる。ただし日本の商社からワクチン商品化の話があったが断ったことがある。

9.　インタビュー調査対象者

Mr. Otavio Oliva (Manager)

(Bio-Manguinhos FIOCRUZ)

日時　　23/Nov./'94　　10:30

場所　　FIOCRUZ (Rio de Janeiro)

インタビュー内容

(ワクチン生産について)

・FIOCRUZでは黄熱病、脳膜炎、ポリオ、コレラ、チフスなどのワクチンを製造している。これらワクチンは全て連邦政府から依頼されて生産し衛生省に納入している。黄熱病ワクチン製造についてはナイジェリアに技術移転している。脳膜炎ワクチン製造についてはフランスとの技術協力で実施中である。ポリオは原液を輸入して生産している。コレ

ラ、チフスについては古い技術を使用している。なお、ブラジルのワクチン製造拠点はFIOCRUZ、Butantan、Vital Brasiなど5ケ所である。原則的にブラジルで必要なものは自国生産し不足分は輸入するかたちになっている。
・麻疹、ポリオ（日本）、脳膜炎（フランス）、黄熱病（米国）、コレラ、チフス（WHO）など全てのワクチンは外国との協力を通じて作られている。
・製造したワクチンは政府により購入されるが、売買額の一部しかワクチン生産部門に還元されないという運営上の問題がある。今後の発展を考えれば、ワクチン生産部門での独立採算性をとる方向が考えられる。ワクチンの価格を2ケ月毎に調整し、毎月の決済とするように経営的に改善されてきた。
（案件の効果）
・このプロジェクトは波及効果が大きいプロジェクトであったといえる。特にワクチンの品質管理に関しては広く効果が波及したといえる。
・このようなプロジェクトでは政府が政治的に参加し、果たす役割が大きい。
（今後の技術協力について）
・風疹とおたふく風のワクチンの必要性が高まったため、1989年、JICAのリオ事務所を通じて協力の申請を行なっている。これは混合ワクチンのライセンス取得に5～7年かかるため、既にライセンスを持つ微研のものを使用したかったことによる。この他にも百日咳についての技術協力の働きかけをしてきている。今後は日本側とワクチン生産に関して経済ベースでの協力も行なっていきたい。

10. インタビュー調査対象者

Ms. Maria Da Luz F. Leal (Counterpart)
(Bio-Manguinhos FIOCRUZ)
（現在、ワクチン製造部門品質管理のチーフ。　日本での研修経験を有する。）

日時　23/Nov./'94　12:00
場所　FIOCRUZ (Rio de Janeiro)
インタビュー内容
（目標達成度）
・日本での2回の研修は大きな成果があった。それまでなかった品質管理を開始することができるようになった。
・1986年の北部でのポリオの大発生の際には日本との協力による技術を応用して20日間で必要ワクチンを製造することができた。（原液はベルギーから輸入）
（案件の効果）
・品質管理技術を他の機関への移転はしていない。
・他の国との技術協力は日本との技術協力をベースとして行なっている。
・カウンターパートの日本での研修後のFIOCRUZでの定着率は高くなく、出ていく人から残っている人への技術移転はあまりされていないのではないか。
・研修では技術的な面以外にも文化的なものを修得し、その意義は大きい。

（自立発展性）
・現在のFIOCRUZでのワクチン生産活動における問題としては人事面、技術面、資金面で貧弱なことがあげられる。また、ワクチン生産に関する政治的な影響が大きく、短期的な視野でしか仕事が出来ないというところがある。
・国内の不況による税収の減少を主な理由として、FIOCRUZでは1991以後、新たな職員を採用していない。そのため、他の人の分まで仕事をカバーしてするようになり、技術面、品質面での低下が生じやすくなっている。

11. インタビュー調査対象者

Dr. Guilardo Martins Alves (Official)
(Instituto de Pos-Graduacao Medica Carlos Chagas)

日時　23/Nov./'94　15:15
場所　Instituto de Pos-Graduacao Medica Carlos Chagas (Rio de Janeiro)
インタビュー内容
（目標達成度）
・本プロジェクト実施当時のFIOCRUZの問題点としてはスタッフの科学的知識水準が十分ではなかったと思う。したがって技術協力の受け入れの基盤づくりが大変であった。今後は人材教育に重点を置いた技術移転の方法の確立が重要と思う。カウンターパート研修、専門家交流はこの意味で意義が大きい。
・人材面での受け入れ準備ができた段階で機材の供与が行なわれた。
・ワクチン製造における技術的な問題としては麻疹ウイルスの種類の選定とワクチンの実用化であった。ブラジル北部で試験的な接種を行ない、ワクチンの効果や後遺症がないことなどを確認した。1983年から全国的に投与することとなった。
・麻疹ワクチンが自国での大量生産化が可能となり、統計的には麻疹による死亡率が低下している。
・プロジェクト成功の鍵としては技術面と同時に人間的な相互理解が成功の鍵だと思う。ブラジル側にもDr. Honmaなど優秀な人材がいた。ブラジル側で欠けていたのはワクチンを取り扱う技術と知識だと思われる。
・日本からの専門家の技術は十分に移転されたことは間違いない。
（実施効率性）
・技術協力のための準備期間としては３ケ月位は必要と思われる。その点で深井専門家の功績は大きい。
・日本での研修後、ブラジルで同様の機材が少ないことは問題と感じられる。
・研修後のドロップアウトを防ぐためにはグループで研修に出し、グループ内で相互に知識の交換と共有ができるような環境をつくってやることや帰国後の機材の供給やポストの用意などが有効だろう。
・外部からFIOCRUZを見ると事務系に比べ技術系のスタッフの数が少ないことが問題といえる。ただ当時のFIOCRUZはタイ、フィリピン、ペルーなどとの国際交流の経験が豊かであり、WHOからも評価されていた。重要なことは目的意識を持つことだろう。

（今後の技術協力について）
・今後の日本からの技術協力を望むとするならばウイルス学分野での協力がげられる。またブラジルから海外への技術協力先としては南米の周辺諸国、アフリカのポルトガル語地域が考えられる。
・プロジェクトのタイミングとしてはブラジルの現状にあった適切なものであったと思う。

12. インタビュー調査対象者
Mr. Joao Luiz S. T. D. B. Quental (Counterpart)
(Bio-Manguinhos FIOCRUZ)
（日本での研修経験を有する。）
日時　24/Nov./'94　9:50
場所　FIOCRUZ (Rio de Janeiro)
インタビュー内容
（実施効率性）
・日本での研修は短期間であったがワクチン生産全体に関する視野をもつことができた。現在はもちろんレベルアップしているがそのベースは日本での研修である。
・日本の微研でのカリキュラムに特に問題はなかった。文化的には多くの影響を受けた。
・帰国後、職場で機材類の不足を感じた。日本の機材は部品供給の面で問題は感じる。日本の機材の部品を国産化することは難しいのではないか。
・プロジェクト終了後の大きな問題としてワクチンの菌の温度管理ができなくなったことがあった。しかし日本の専門家の助力により解決でき、1993年9月から再び生産が可能となった。
・第３国研修の際に日本からブラジルに来る専門家の指導が大変役に立っている。
（自立発展性）
・FIOCRUZでも来年から「品質管理プログラム」を実施しようとしている。また機材納入企業についても指導をしていく予定である。ただ品質管理をしていく人材の教育では不十分なところもある。
・ワクチン生産に必要な資源（人、資金など）はあるが、技術向上の面で将来日本の協力が必要となるかも知れない。
・FIOCRUZは給料は低いが安定しており、職場の雰囲気も良く、生きがいもあり満足している。

13. インタビュー調査対象者
Ms. Clara Soares Viga (Counterpart)
(Bio-Manguinhos FIOCRUZ)
（日本での研修経験はない。）
Mr. Jamil Torquato Ferreira (Counterpart)
(Bio-Manguinhos FIOCRUZ)
（日本での研修経験はない。）

Mr. Benedito Couto Da Silva (Counterpart)
(Bio-Manguinhos FIOCRUZ)
(生産現場での職員。日本での研修経験はない。)

日時　24/Nov./'94　11:00

場所　FIOCRUZ (Rio de Janeiro)

インタビュー内容

(案件の効果)

・日本で研修した人たちから自分たちへの技術移転はほとんどなく、自分たちで研究している。できれば自分たちも日本で研修し、専門家から直接指導を受けたい。

・ブラジル国内で日本からきた専門家から直接指導をうける機会はあった。

・生産したワクチンの南米各国への輸出ということではFIOCRUZは未だできる状態ではないと思う。本プロジェクト実施中に技術移転を受けた人がもうわずかしか残っていない。人材育成、新しい機材などが必要である。

(自立発展性)

・本プロジェクト終了後、ワクチン生産部門では消耗品の供給が不十分で、技術水準の高い人も少なく生産条件は悪くなっている。国産品購入を義務付けられ、しかも入札制度があるため、低価格、低品質のものしか入ってこない。

・その他、人材(人数とレベル)や原材料等の適切な貯蔵の問題があげられる。

・日本から供与された機材の保守・維持管理はこれまで何とか行なってきたが、今後日本の専門家の援助が必要になると思われる。日本からの技術移転を受けた人が他の職員に技術移転をしようと思ってもそれを覚えようとする意欲のない人が多いことが大きな問題である。ブラジルの技術者は自分達で向上しようとする者が少ない。

・供与された機材の保守・維持管理のために小さな部品は日本から専門家が持ってきてくれたものがストックされているので大体間に合う。しかしそれもなくなりつつあり、輸入にたよらざるを得なくなるのが心配である。機材の保守・維持管理の技術面ではプロジェクト実施当時化からのスタッフが1名残って現時点では問題がない。

・新しく購入した機材の中にはひどいものがあって止まっている時間の方が長いものがある。

・原材料の安定的確保ということでは日本から持ってきた麻疹ワクチンの菌が乏しくなっている。当分培養して確保することはできそうである。

14. インタビュー調査対象者

Ms. Darcy Hokama (Counterpart)
(Bio-Manguinhos FIOCRUZ)
(日本での研修経験を有する。)

Mr. Paulo Roberto De Cavalho (Counterpart)
(Bio-Manguinhos FIOCRUZ)
(当時ラボで品質管理担当)

Mr. Carlos Alberto Nogueira (Counterpart)

(Bio-Manguinhos FIOCRUZ)
（当時機材メンテナンンス担当）
Ms. Jussara Do Nascimentora (Counterpart)
(Bio-Manguinhos FIOCRUZ)
Mr. Luiz Antonio Da Cunha (Counterpart)
(Bio-Manguinhos FIOCRUZ)
（当時FIOCRUZポリオワクチン生産部。日本での研修経験を有する。）
Mr. Renato Sergio Marchevsky (Counterpart)
(Bio-Manguinhos FIOCRUZ)
（当時実験用猿の品質管理。日本での研修経験を有する。）

日時　24/Nov./'94　15:00

場所　FIOCRUZ (Rio de Janeiro)

インタビュー内容

（案件の効果）

・本プロジェクトの成果として第３国研修を行なうようになったこと、南米で唯一の麻疹の研究所になったことがあげられる。波及効果はブラジル全体に広がったと思う。

・パラグアイ、アルゼンチン、ボリビアなどでワクチン接種にもかかわらず発病が目立ったのは貯蔵などのワクチンの品質管理がよくなかったのではないか。

・ポリオの生産コストは非常に高くなるとみられる。原材料のサルの輸入は困難である。

・機材の部品面では苦労するなどアフターケアの申請リストは良くなかった。

・個人的には日本から帰った時点で、ラボには機材の設置が完了していたため、非常にスムースに仕事にとりかかれた。

（自立発展性）

・機材面では現在も問題ない。当時の機材はまだ良好な状態で機能している。1989年12月に火事があり、機材も被害を受けた。やりくりして使っているところもある。猿の飼育に必要なスペースと施設がないがそれ以外は問題ない。

・現在は日本のノウハウをベースとして自分たちで新しいものをつくっている。

・ワクチン生産のための施設は多くの問題があり、本プロジェクト実施時に日本政府側から指摘してもらえばよかった。

・プロジェクト完了後アフターケアは長期的に行なって欲しい。（Luiz）

・プロジェクト完了後のアフターケアは自助努力を養うため一定の期間で完了させた方がよい。（Darcy）

・新しいプロジェクトが起こっても対応できると思う。

・設備の整備が問題となっている。これは一般の人々の衛生に対する概念が変らなければ良くするのは困難である。今は何とかやっていくより仕方がない。

・麻疹の接種を5才から15才にあげた理由は麻疹を中南米地域で一斉に撲滅してしまおうという目的からである。15才というのは今年一回限りである。このような大量供給はWHOの支援を受けて可能となった。現在のラボの生産能力からして3000万人分を生産することは極めて難しい。

・同種の国際技術協力プロジェクトを実施するときは、機材の保守・維持管理について

は消耗部品の供給計画をよく考えて欲しい。
・ブラジル政府の役人がプロジェクト実施中に交替するとプロジェクト遂行に影響する。日本側からプロジェクト中のポリシーを一貫させるような要望がだせないか。

15. インタビュー調査対象者

Dr. Hermann Schatzmayr (Beneficiary)
(Bio-Manguinhos: FIOCRUZ)
（元ウイルス学部長、元FIOCRUZ総裁。日本での研修経験を有する。）

日時　25/Nov./'94　9:00
場所　FIOCRUZ (Rio de Janeiro)
インタビュー内容

・Dr. Honmaはかって上司であり、一緒に本プロジェクトの内容について検討し提案を行なった。
（当初計画の妥当性）
・これほど結果の良いプロジェクトはなかったといえる。技術移転のプロジェクトのモデルとして取り上げ京都の国際会議で紹介した。
・このプロジェクトに関し日本側への注文はない。ブラジル側への注文としては麻疹ワクチンの生産目標量を年間1000～1500万ドーズとしたが、今になってみるともう少し多くてよかった。
（案件の効果）
・本プロジェクトは技術移転の受け入れ体制の整備や周辺技術開発に大きな効果があった。黄熱病、脳膜炎等のワクチン製造にも役だっている。ポリオワクチンの品質管理は猿の品質管理、黄熱病やA型、B型肝炎のワクチン製造に役だっている。
・近い将来、日本との技術協力の機会があれば、B型肝炎ワクチンに関して行なって欲しい。ブラジルではB 型肝炎の発生が多く、アマゾンの土着民の間で深刻な問題となっている。ワクチン製造の協力プロジェクトはこれまで成功していない。日本はB 型肝炎に関しては高い技術をもっており、中国、台湾（差別用語？）同様協力プロジェクトを進めたい。ワクチン製造コストは高いが輸入はもっと高い。
（実施効率性）
・本プロジェクトは原料、機材、研修等の必要なパッケージがあって大変有効であったと思う。ただし、プロジェクトの準備期間が少し長すぎたきらいはある。
・ブラジル側からの支援の問題としては供与材料の通関に当初時間がかかった。
（今後の技術協力について）
・技術の発展は目ざましく常に新しいものを取り入れていく必要がある。このセンターは日本からの技術をベースにして他の国へ技術を移転するようになった。しかし、常に新しい技術を取り入れ、利用可能としていくことは難しい。黄熱病、A型肝炎ワクチンは自国生産している。しかし、資金的問題もある。
・資金があればB型肝炎のワクチン生産に投下したい。また、ジフテリア、破傷風、百日咳等のラボにも利用させたい。
・FIOCRUZでは２年間毎の役員交替で一貫したポリシーはとりにくく、組織運営上の問題

はある。
・Guilardo Martns Alves氏の交代以来、人員、組織が倍増し、内部で問題が生じている。次の大統領になったらFIOCRUZの製造部門を独立することにより、一貫した体制で製造を可能とする計画がある。

16. インタビュー調査対象者

Ms. Leila De mello Yonez Nogueira (Beneficiary)
(Bio-Manguinhos FIOCRUZ)
(現在、ブラジルの国立品質管理研究所で輸入されるワクチンの品質検査を行ない、衛生省に報告している。)
Ms. Solange Artinos De Oliveira (Beneficiary)
(Bio-Manguinhos FIOCRUZ)
(現在、Niteroi連邦大学医学部教授)

日時　25/Nov./'94　11:00
場所　FIOCRUZ (Rio de Janeiro)
インタビュー内容
(ワクチンの投与状況)
・現在ポリオの発生率はゼロに近く、麻疹はごくわずか発病がみられる。脳膜炎は一週間に数十件の発病があり、大半は子供である。連邦政府は脳膜炎ワクチンをキューバから輸入することを検討している。コレラはワクチンを国産化しているが効果はあまりよくない。
・HBVはアマゾンで多く発生し、ワクチンは輸入品を使用している。
・1986年の調査では貯蔵の仕方が悪く、ワクチンの品質がよくなかった。1986～1990年の間には大部改善されてきているが不十分である。保健所に配布する前の品質管理によるとすべて100%良好であり、現地での貯蔵に問題がある。1987年ごろから貯蔵の問題の解決のためブラジル貯蔵センターを整備中であり、フリーザー、冷凍トラックを購入している。
・ワクチンは毎年各州の申請に応じて配布しているが、大体3～4ケ月で消費される。
・FIOCRUZは麻疹ワクチンではブラジルで一番と思う。
・資金的問題はある。JICAやGTZの技術協力を受けている。

17. インタビュー調査対象者

Mr. Antonio Eugenio C. C. De Almeida (Beneficiary)
(Bio-Manguinhos FIOCRUZ)
(国立品質管理研究所免疫及び微生物学部長)

日時　25/Nov./'94　12:15
場所　FIOCRUZ (Rio de Janeiro)
インタビュー内容
・本研究所では衛生省に納入されるワクチンの品質管理が主要な業務である。
・BCGと黄熱病は国内需要を満たし、輸出もしている。ポリオ、はしか、DTPは一部輸入

している。血清はBUTANTAN研究所等で製造している。
・麻疹ワクチンの品質は非常によく、他の国の製品と比べても遜色ない。
（ワクチン投与の課題）
・1992年に麻疹ワクチンの対象年齢を15才に引き上げたために国産ワクチンだけでは不足し、世界各地から輸入した。そのため現在は余っている。
・ワクチンの現場での品質低下防止ということでは、ブラジル南部ではよいフリーザーを持っているため比較的良好であるが、北部においては問題が多い。衛生財団を通じて現場サイドに貯蔵に関する情報、マニュアルを与え、オリエンテーションも行ない品質劣化に努めている。しかし温度管理のできないフリーザーなど、貯蔵設備がよくない。衛生財団による指導を頻繁に行なう必要がある。ワクチン接種者を集めて直接指導しているところもある。このような直接的指導は重要である。個人的には1パックあたりの数を減らす必要があると思う。とくに人口の少ないところに配布するものについては使用の残りが出ないようにすることが重要ではないかと思う。
・これからの施策としてパッケージシステムの改善、現場におけるワクチン取り扱い者に対する技術指導、支援などが考えられる。

18. インタビュー調査対象者
Dr. Carlos Medicis Morel (Official)
(Gab. do Presidente FIOCRUZ)
日時　25/Nov./'94　14:35
場所　FIOCRUZ (Rio de Janeiro)
インタビュー内容
（ワクチン投与の課題）
・ワクチンのパッケージの小型化は今後考えていく必要があるがコストは上がる。ワクチンのパッケージは品質管理技術に含まれるもので、既に第3国研修の内容に組み込まれている。
・FIOCRUZと衛生省の間では常にミーティングを持って緊密な関係を保とうとしている。現在、両者のミーティングは中止されているが、技術者の交流は続いている。政府側の姿勢に左右されるところが大きい。
・ワクチンの全ては国の保健政策に基づいている。ワクチンの生産は衛生省の管轄と計画によることになる。ワクチンの投与は戦略的に行なう必要があるため、薬局による供給ではなく国による配布がよい。
（ワクチン生産の課題）
・FIOZRUZは実績で評価され、大学より印象はよい。特殊な位置を占めている機関である。
・長期計画は5～6年毎に見直される。FIOCRUZ内部でも部局相互に会議内容を報告しあっている。
・研究部門としては、本プロジェクト後、もう10年もたっているのでポリオ、麻疹以外の新しい分野をカバーするように努めたい。
・将来は民間企業をカウンターパートとして必要になる可能性がある。DTPは民営化の方

策が可能と思われる。
・肝炎のワクチン生産では人血以外の材料から製造が可能となった。
（今後の技術協力について）
・民間企業との合弁事業を考えたが民間は自分のところのノウハウが外部にもれることをきらう。日本の研究所、大学などはその点でカウンターパートとしてよい。
・今後の日本との協力関係の分野として、B型肝炎ワクチン、MMRのワクチン、経済性との両立を考えたプロジェクト、人材養成などがあげられる。特に専門家派遣を行なって欲しい。人材教育についてはシルバーボランティアのような人材が欲しい。

19. インタビュー調査対象者

Mr. Jorge Zepeda Bermudez (Beneficiary)
(Bio-Manguinhos FIOCRUZ)
（ポリオの大量予防政策に参加した。）

日時　25/Nov./'94　16:00
場所　FIOCRUZ (Rio de Janeiro)

インタビュー内容
・当時、使用されるワクチンの品質管理情報に基づく品質管理を行なった。日本の技術協力プロジェクト関係者とは品質管理に関して交流があった。品質管理に関するモデルというようなものはとくになかった。
（目標達成度）
・本プロジェクトについては、機材、研修、研究に関して十分な予算とおもった。プロジェクトの中で経費がどのように使われたかは知らない。
（ワクチン生産の課題）
・FIOCRUZの活動に関する短期的な課題としては人材の確保があげられる。現在、特殊技術を持つ人の採用を手控えているのは問題である。長期的な課題としてはワクチン生産のコストダウン、コストスタディと品質確保の検討などがあげられる。コストダウンの具体的なアイデアとして、パッケージシステムの改善、長期戦略の作成とそれに基づく製造計画などが考えられる。
（今後の技術協力について）
・ブラジルでは日本の技術をベースにしてブラジルの技術を確立した。技術移転はすばらしいことだと思うし、ブラジルからさらに第３国への技術移転をすることは義務だと思う。
・品質管理の技術はどのワクチン分野も類似しているので、他の分野への応用は可能と考える。
・技術協力に対する考え方は以下のようなものがあげられる。

1. 技術協力の分野が政治的、社会的にその国の需要に適合していること
2. 技術受け入れ機関の能力と継続的実施可能性
3. カウンターパート機関の人材育成の重視
4. 将来的視野もったプロジェクト目的の妥当性

また技術移転の具体的実施時においては、機関の専門とする分野の適切性、両者の技術的能力、研修と専門家派遣などが重要である。

THE JOINT EVALUATION STUDY ON THE JAPANESE TECHNICAL COOPERATION PROJECTS IN BRAZIL

BIOLOGICALS PRODUCTION PROJECT

QUESTIONNAIRE TO COUNTERPARTS

JAPAN INTERNATIONAL COOPERATION AGENCY
SEPTEMBER, 1993

BACKGROUND OF RESPONDENT

Name: _____

Designation: _____

Division: _____

Organization: _____

Year when you took training during Japanese cooperation: _____

Subject of training: _____

Speciality in Biologicals Production Project: _____

Date: _____

Following are the question on the Biologicals Production Project. This survey is being conducted by the Brazilian Government and the Japanese Government in order to make a post evaluation on the Brazil-Japan Technical Cooperation Project(1980-1985).

Kindly please tick (v) the most appropriate answer or write down your comments. Your cooperation would be highly appreciated and your cooperation would be fully confidential and used exclusively for this survey.

[EFFICIENCY]
This section is concerned with the efficiency of the Project: i.e. how economically the inputs are translated into outputs.

1. Did the Japanese Government provide enough input for the measles/poliomyelitis vaccine production Project?

(i) measles

a) As a whole

☐Yes ☐No ☐No comment

b) Was the machines/equipment/materials adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Was the counterpart training in Japan adequate(in general)?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) Was the technology transfer from Japan to Brazil adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

e) Was the level of technology transferred from Japan to Brazil adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

f) If you have any comments on the Japanese inputs, please explain:

(ii) poliomyelitis

a) As a whole

☐Yes ☐No ☐No comment

b) Was the machines/equipment/materials adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Was the counterpart training in Japan adequate(in general)?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) Was the technology transfer from Japan to Brazil adequate?
☐Yes ☐No ☐No comment
If 'No', please explain:

---

e) Was the level of technology transferred from Japan to Brazil adequate?
☐Yes ☐No ☐No comment
If 'No', please explain:

---

f) If you have any comments on the Japanese inputs, please explain:

---

2. Did the Brazilian Government provide enough input for the measles/poliomyelitis vaccine production Project?

(i) measles

a) As a whole
☐Yes ☐No ☐No comment

b) Are the facilities(space, utilities etc) adequate?
☐Yes ☐No ☐No comment
If 'No', please explain:

---

c) Did they provide enough budget for the Project?
☐Yes ☐No ☐No comment
If 'No', please explain:

---

d) Did they provide enough manpower for the Project?
Yes No
☐Yes ☐No ☐No comment
If 'No', please explain:

---

e) If you have any comments on the Brazilian inputs, please explain:

(ii) poliomyelitis

a) As a whole
☐Yes ☐No ☐No comment

b) Are the facilities(space, utilities etc) adequate?
☐Yes ☐No ☐No comment
If 'No', please explain:

---

c) Did they provide enough budget for the Project?
☐Yes ☐No ☐No comment
If 'No', please explain:

---

d) Did they provide enough manpower for the Project?
Yes No
☐Yes ☐No ☐No comment
If 'No', please explain:

---

e) If you have any comments on the Brazilian inputs, please explain:

---

3. Do you think that the vaccination against measles/poliomyelitis was practiced by the Brazilian Government effectively after the Japanese cooperation for the Project?

a) measles
☐Yes ☐No ☐No comment
If 'No', please explain:

---

b) poliomyelitis
☐Yes ☐No ☐No comment
If 'No', please explain:

---

4. Do you think that the Japanese cooperation was given enough support from the other sections of M.O.H.?
☐Yes ☐No ☐No comment
If 'No', please explain:

---

5. Do you think that the Japanese cooperation was implemented with enough linkage with the other related project of related organization?
☐Yes ☐No ☐No comment
If 'Yes', please list those projects:

Name of Project	Implementing Organization

[EFFECTIVENESS]
This section is concerned with the effectiveness of the Project: i.e. the extent whereby the objectives of the Project are successful.

6. Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?

a) measles
☐Yes ☐No ☐No comment
If 'No', please explain:

---

b) poliomyelitis
☐Yes ☐No ☐No comment
If 'No', please explain:

---

7. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control of the measles/poliomyelitis vaccine production?

a) measles
☐Yes ☐No ☐No comment
If 'No', please explain:

---

b) poliomyelitis
☐Yes ☐No ☐No comment
If 'No', please explain:

---

8. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to implement the National Vaccination Programme?

☐Yes ☐No ☐No comment
If 'No', please explain:

---

9. How do you evaluate your skill and knowledge just after the cooperation with Japanese experts and your current one?

		After cooperation			Current		
	No comment	Low	Moderate	High	Low	Moderate	High
a) Overall	☐	☐	☐	☐	☐	☐	☐
b) Understanding of vaccine production	☐	☐	☐	☐	☐	☐	☐
c) Simple device handling	☐	☐	☐	☐	☐	☐	☐
d) Machine operation	☐	☐	☐	☐	☐	☐	☐
e) Machine	☐	☐	☐	☐	☐	☐	☐

maintenance
f) Understanding of the methods of quality test ☐ ☐ ☐ ☐ ☐ ☐ ☐

10. Were you satisfied with the training skill/knowledge of Japanese experts?

a) Scientific Subject

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Technical/Practical Subject

☐Yes ☐No ☐No comment

If 'No', please explain:

---

11. Have you taken a counterpart training in Japan?

☐Yes ☐No

a) If 'Yes", were you satisfied with it?

☐Yes ☐No

What was the best point to be trained in Japan? Please explain.

If 'No', what was the major problem for you?

☐Training period was too short.
☐Technical level was too high.
☐Technical level was too low.
☐Training curriculum did not meet your needs.
☐Others please specify:

---

12. Did you have any problems, when you start your job after training?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

13. Were the facilities (space, utilities etc.) adequate during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

14. Have the production equipment/machines been sufficiently provided during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

15. Have the production equipment/machines been adequately maintained during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

[IMPACT]

This section is concerned with the impact of the Project: i.e. direct or indirect, positive or negative.

16. Do you think that Japanese cooperation for the Biologicals Production Project contributed to the improvement of the technology of other kind vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No", please explain:

---

17. Have the vaccines supplied by this Project contributed to the improvement of preventive measures against measles/poliomyelitis?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

18. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to reduce the foreign financial burden of Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No", please explain:

---

19. Have you ever had a chance to transfer your technology to the staffs of other biologicals production system?

☐Yes ☐No ☐No comment

a) If 'Yes', what type of technology did you transfer to them?

☐Quality test

☐Machine maintenance/management/operation

☐Others (please specify:)

b) If 'No', what was the major hindrance for transfer?, please explain:

---

20. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of vaccination system in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

21. Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

22. Do you think that Japanese international contribution to the Biologicals Production is broadly recognized in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

23. Have you had any negative impacts from the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

24. Were there any other social/economical contribution by the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

[SUSTAINABILITY]

This section is concerned with the sustainability of the Project: i.e. the extent of the Biologicals Production Project development for self sustainability after the Japanese assistance was completed.

25. Does the Brazilian Government have the consistent policy for the Biologicals Production Project to continue its activities of measles/poliomyelitis vaccine production after the Japanese cooperation?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

26. Does the measles/poliomyelitis vaccine production Project have enough resources to continue its activities?

a) measles

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

☐Equipments/machines(please specify:)
☐Spare parts(please specify:)
☐Materials(please specify:)
☐Facilities(please specify:)
☐Operation system(please specify:)
☐Staff(please specify:)
☐Budget(please specify:)
☐Others (please specify:)

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

☐Equipments/machines(please specify:)
☐Spare parts(please specify:)
☐Materials(please specify:)
☐Facilities(please specify:)
☐Operation system(please specify:)
☐Staff(please specify:)
☐Budget(please specify:)
☐Others (please specify:)

27. Have the equipments/machines/spare parts for the Project been sufficiently provided after the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

28. Have the equipments/machines/spare parts for the Project been adequately maintained after the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

29. Do you think that this measles/poliomyelitis vaccine production Project will make enough benefit to adopt self-supporting system?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

30. Do you think that this poliomyelitis vaccine production Project will develop into consistent national production plant without import of foreign vulks?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

31. Do you have an internal training system in FIOCRUZ to transfer the technology for biologicals production among staffs?

☐Yes ☐No ☐No comment

Please explain:

☐Yes ☐No ☐No comment

Please explain:

---

32 Do you think that you have mastered enough technology to maintain the activities for this Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

33. Are you satisfied with your current situation in Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'No', what is the major problem for you?

☐Salary is not enough

☐Lack of opportunities to improve your technology

☐Others (please specify:)

34. Do you plan to continue to work for this Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

[RELEVANCE]
This section is concerned with the relevance of the Project: i.e. whether the objectives of the Project are pertinent and worthwhile.

35. Have there been any major policy changes relating to the national vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

36. Is the purpose of the project, to establish self-producing system of measles/poliomyelitis vaccines on a large scale, still relevant to the current needs of your country?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

37. Do you think that detailed plan of technology transfer and cooperation between Japan and Brazil were adequately made after enough consultation with Brazilian counterparts?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

38. Do you think that Japanese technology transfer and cooperation were made opportunely during the Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

39. Any other comment:

(Thank you for your cooperation)

THE JOINT EVALUATION STUDY ON THE JAPANESE TECHNICAL COOPERATION PROJECTS IN BRAZIL

BIOLOGICALS PRODUCTION PROJECT

QUESTIONNAIRE TO BENEFICIARIES(Health center, Hospital)

JAPAN INTERNATIONAL COOPERATION AGENCY
SEPTEMBER, 1993

BACKGROUND OF RESPONDENT

Name: _____

Designation: _____

Division: _____

Organization: _____

Date: _____

Following are the question on the Biologicals Production Project. This survey is being conducted by the Brazilian Government and the Japanese Government in order to make a post evaluation on the Brazil-Japan Technical Cooperation Project(1980-1985).

Kindly please tick (v) the most appropriate answer or write down your comments. Your cooperation would be highly appreciated and your cooperation would be fully confidential and used exclusively for this survey.

[EFFICIENCY]
This section is concerned with the efficiency of the Project: i.e. how economically the inputs are translated into outputs.

1. Did the Brazilian Government established appropriate vaccination system against measles/poliomyelitis during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

(i) measles

a) Are the facilities for measles vaccination enough?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Did they provide enough budget for measles vaccination?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Did they provide enough manpower for measles vaccination?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) If you have any comments on the Brazilian vaccination system against measles, please explain:

(ii) poliomyelitis

a) Are the facilities for poliomyelitis vaccination enough?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Did they provide enough budget for poliomyelitis vaccination?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Did they provide enough manpower for poliomyelitis vaccination?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) If you have any comments on the Brazilian vaccination system against poliomyelitis, please explain:

[EFFECTIVENESS]
This section is concerned with the effectiveness of the Project: i.e. the extent whereby the objectives of the Project are successful.

2. Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?

a) measles
☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis
☐Yes ☐No ☐No comment
If 'No', please explain:

---

3. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control technology of measles/poliomyelitis vaccine?

a) measles
☐Yes ☐No ☐No comment
If 'No', please explain:

---

b) poliomyelitis
☐Yes ☐No ☐No comment
If 'No', please explain:

[IMPACT]
This section is concerned with the impact of the Japanese cooperation for the Biologicals Production Project: i.e. direct or indirect, positive or negative.

4. Have the vaccines supplied by this Biologicals Production Project contributed to the improvement of preventive measures against measles/poliomyelitis?

a) measles
☐Yes ☐No ☐No comment
If 'No', please explain:

---

b) poliomyelitis
☐Yes ☐No ☐No comment
If 'No', please explain:

---

5. Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

6. Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines at a moderate price?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

7. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of preventive measures against measles/poliomyelitis in Brazil?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

8. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of vaccination system in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

9. Were there any other social/economical contribution by the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

10. Do you think that Japanese international contribution to the Biologicals Production is broadly recognized in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

11. Have you had any negative impacts from Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

[SUSTAINABILITY]

This section is concerned with the sustainability of the Project: i.e. the extent of the Biologicals Production Project development for self sustainability after the Japanese assistance was completed.

12. Does the Brazilian Government have the consistent policy for the Biologicals Production Project to continue its activities of measles/poliomyelitis vaccine production?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

13. Have the Brazilian Government established pertinent vaccination system for measles/poliomyelitis such as the distribution and keeping of vaccines and inoculating persons in need of ?

a) measles

☐Yes ☐No ☐No. comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

[RELEVANCE]
This section is concerned with the relevance of the Project: i.e. whether the objectives of the Project are pertinent and worthwhile.

14. Is the purpose of the project, to establish self-producing system of vaccines on a large scale, still relevant to the current needs of your country?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

15. Do you think that Japanese technology transfer and cooperation were made opportunely during the Project?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

16. Any other comment:

(Thank you for your cooperation)

THE JOINT EVALUATION STUDY ON THE JAPANESE TECHNICAL COOPERATION PROJECTS IN BRAZIL

BIOLOGICALS PRODUCTION PROJECT

INTERVIEW SHEET TO OFFICIALS

JAPAN INTERNATIONAL COOPERATION AGENCY
SEPTEMBER, 1993

BACKGROUND OF RESPONDENT

Name: _____

Designation: _____

Division: _____

Organization: _____

Date: _____

Following are the question on the *Biologicals Production Project*. This survey is being conducted by the Brazilian Government and the Japanese Government in order to make a post evaluation on the Brazil-Japan Technical Cooperation *Project(1980-1985)*.

We would like to have an interview on this sheet.

Kindly please tick (v) the most appropriate answer or write down your comments. Your cooperation would be highly appreciated and your cooperation would be fully confidential and used exclusively for this survey.

[EFFICIENCY]
This section is concerned with the efficiency of the Project: i.e. how economically the inputs are translated into outputs.

1. Do you think that the Japanese cooperation was implemented with enough linkage with the other related project of related organization?

☐Yes ☐No ☐No comment

If 'Yes', please list those projects:

Name of Project	Implementing Organization

[EFFECTIVENESS]
This section is concerned with the effectiveness of the Project: i.e. the extent whereby the objectives of the Project are successful.

2. Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

3. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control of the measles/poliomyelitis vaccine production?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

4. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to implement the National Vaccination Programme?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

5. Were you satisfied with the training skill/knowledge of Japanese experts?

a) Scientific Subject

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Technical/Practical Subject

☐Yes ☐No ☐No comment

If 'No', please explain:

---

6. Were the facilities (space, utilities etc.) adequate during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

7. Have the production equipment/machines been sufficiently provided during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

8. Have the production equipment/machines been adequately maintained during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

[IMPACT]

This section is concerned with the impact of the Project: i.e. direct or indirect, positive or negative.

9. Do you think that the Japanese cooperation for Biologicals Production Project contributed to the improvement of the technology of other kind vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No", please explain:

---

10. Have the vaccines supplied by this Project contributed to the improvement of preventive measures against measles/poliomyelitis?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

11. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to reduce the foreign financial burden of Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No", please explain:

---

12. Have you ever had a chance to transfer the FIOCRUZ's measles/poliomyelitis vaccine production technology to the other biologicals production system?

☐Yes ☐No ☐No comment

a) If 'Yes', what type of technology did you transfer to them?

☐Quality test

☐Machine maintenance/management/operation

☐Others (please specify:)

b) If 'No', what was the major hindrance for transfer?, please explain:

---

13. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of vaccination system in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

14. Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

15. Do you think that Japanese international contribution to the Biologicals Production is broadly recognized in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

16. Have you had any negative impacts from the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

17. Were there any other social/economical contribution by the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

[SUSTAINABILITY]

This section is concerned with the sustainability of the Project: i.e. the extent of the Biologicals Production Project development for self sustainability after the Japanese assistance was completed.

18. Does the Brazilian Government have the consistent policy for the Biologicals Production Project to continue its activities of measles/poliomyelitis vaccine production after the Japanese cooperation?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

19. Does the Brazilian Government have the consistent policy for the administration of FIOCRUZ to continue its activities of measles/poliomyelitis vaccine production after the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

20. Does the measles/poliomyelitis vaccine production Project have enough resources to continue its activities?

a) measles

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

- ☐Equipments/machines(please specify:)
- ☐Spare parts(please specify:)
- ☐Materials(please specify:)
- ☐Facilities(please specify:)
- ☐Operation system(please specify:)
- ☐Staff(please specify:)
- ☐Budget(please specify:)
- ☐Others (please specify:)

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

- ☐Equipments/machines(please specify:)
- ☐Spare parts(please specify:)
- ☐Materials(please specify:)
- ☐Facilities(please specify:)
- ☐Operation system(please specify:)
- ☐Staff(please specify:)
- ☐Budget(please specify:)
- ☐Others (please specify:)

21. Do you think that this measles/poliomyelitis vaccine production Project will make enough benefit to adopt self-supporting system?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

22. Do you think that this poliomyelitis vaccine production Project will develop into consistent national production plant without import of foreign vulks?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

23. Do you think that FIOCRUZ Foundation have an enough ability to adopt internal training system to transfer the technology for biologicals production among staffs?

☐Yes ☐No ☐No comment

Please explain:

---

24 Do you think that counterparts for the Japanese cooperation have mastered enough technology to maintain the activities of this Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

25. Do you have any opinion to establish self-sustaining system of this Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

[RELEVANCE]

This section is concerned with the relevance of the Project: i.e. whether the objectives of the Project are pertinent and worthwhile.

26. Have there been any major policy changes relating to the national vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

27. Is the purpose of the project, to establish self-producing system of measles/poliomyelitis vaccines on a large scale, still relevant to the current needs of your country?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

28. Do you think that the detailed plan of technology transfer and cooperation were adequately made after the enough discussion between Japanese parts and Brazilian parts?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

29. Do you think that Japanese technology transfer and cooperation were made opportunely during the Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

30. Any other comment:

(Thank you for your cooperation)

THE JOINT EVALUATION STUDY ON THE JAPANESE TECHNICAL COOPERATION PROJECTS IN BRAZIL

BIOLOGICALS PRODUCTION PROJECT

INTERVIEW SHEET TO MANAGERS

JAPAN INTERNATIONAL COOPERATION AGENCY
SEPTEMBER, 1993

BACKGROUND OF RESPONDENT

Name: _____

Designation: _____

Division: _____

Organization: _____

Date: _____

Following are the question on the Biologicals Production Project. This survey is being conducted by the Brazilian Government and the Japanese Government in order to make a post evaluation on the Brazil-Japan Technical Cooperation Project(1980-1985).

We would like to have an interview on this sheet.

Kindly please tick (v) the most appropriate answer or write down your comments. Your cooperation would be highly appreciated and your cooperation would be fully confidential and used exclusively for this survey.

[EFFICIENCY]
This section is concerned with the efficiency of the Project: i.e. how economically the inputs are translated into outputs.

1. Do you think that Japanese cooperation for the Biologicals Production Project succeeded to realize measles/poliomyelitis vaccines on a large scale?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

2. Do you think that Japanese cooperation for this Project contributed to strengthen the ability of quality control on the biologicals production for measles/poliomyelitis?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

3. Did the Japanese Government provide enough input for the measles/poliomyelitis vaccine production Project?

(i) measles

a) Was the machines/equipment/materials adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Was the counterpart training in Japan adequate(in general)?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Was the technology transfer from Japan to Brazil adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) Was the level of technology transferred from Japan to Brazil adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

e) If you have any comments on the Japanese inputs, please explain:

(ii) poliomyelitis

a) Was the machines/equipment/materials adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Was the counterpart training in Japan adequate(in general)?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Was the technology transfer from Japan to Brazil adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) Was the level of technology transferred from Japan to Brazil adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

e) If you have any comments on the Japanese inputs, please explain:

---

4. Did the Brazilian Government provide enough input for the measles/poliomyelitis vaccine production Project?

(i) measles

Yes No

a) Are the facilities(space, utilities etc) adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Did they provide enough budget for the Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Did they provide enough manpower for the Project?

Yes No

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) If you have any comments on the Brazilian inputs, please explain:

(ii) poliomyelitis

Yes No

a) Are the facilities(space, utilities etc) adequate?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Did they provide enough budget for the Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

c) Did they provide enough manpower for the Project?

Yes No

☐Yes ☐No ☐No comment

If 'No', please explain:

---

d) If you have any comments on the Brazilian inputs, please explain:

---

5. Do you think that the vaccination against measles/poliomyelitis was practiced by the Brazilian Government effectively after the Japanese cooperation?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

6. Do you think that the Project was given enough support from the other sections of M.O.H.?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

7. Do you think that Japanese cooperation schedule adequately made for implementation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

8. Do you think that the Japanese cooperation was implemented with enough linkage with the other related project of related organization?

☐Yes ☐No ☐No comment

If 'Yes', please list those projects:

Name of Project	Implementing Organization

[EFFECTIVENESS]

This section is concerned with the effectiveness of the Project: i.e. the extent whereby the objectives of the Project are successful.

9. Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

10. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control in the measles/poliomyelitis vaccine production?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

11. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to implement the National Vaccination Programme?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

12. How do you evaluate counterparts' skill and knowledge just after the training with Japanese experts and current one?

		After cooperation			Current		
	No comment	Low	Moderate	High	Low	Moderate	High
a) Overall	☐	☐	☐	☐	☐	☐	☐
b) Understanding of vaccine production	☐	☐	☐	☐	☐	☐	☐
c) Simple device handling	☐	☐	☐	☐	☐	☐	☐
d) Machine operation	☐	☐	☐	☐	☐	☐	☐
e) Machine maintenance	☐	☐	☐	☐	☐	☐	☐
f) Understanding of the methods of quality test	☐	☐	☐	☐	☐	☐	☐

13. Were you satisfied with the training skill/knowledge of Japanese experts?

a) Scientific Subject

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) Technical/Practical Subject

☐Yes ☐No ☐No comment

If 'No', please explain:

---

14. Were the facilities (space, utilities etc.) adequate during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

15. Have the production equipment/machines been sufficiently provided during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

16. Have the production equipment/machines been adequately maintained during the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

[IMPACT]
This section is concerned with the impact of the Project: i.e. direct or indirect, positive or negative.

17. Do you think that the Japanese cooperation for Biologicals Production Project contributed to the improvement of the technology of other kind vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No", please explain:

---

18. Have the vaccines supplied by this Project contributed to the improvement of preventive measures against measles/poliomyelitis?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

19. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to reduce the foreign financial burden of Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No", please explain:

---

20. Have you ever had a chance to transfer your technology to the staffs of other biologicals production system?

☐Yes ☐No ☐No comment

a) If 'Yes', what type of technology did you transfer to them?

☐Quality test

☐Machine maintenance/management/operation

☐Others (please specify:)

b) If 'No', what was the major hindrance for transfer?, please explain:

---

21. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of vaccination system in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

22. Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

23. Have you had any other unexpected impacts on the Biologicals Production caused by the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

24. Have you had any negative impacts from the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

25. Were there any other social/economical contribution by the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

[SUSTAINABILITY]

This section is concerned with the sustainability of the Project: i.e. the extent of the Biologicals Production Project development for self sustainability after the Japanese assistance was completed.

26. Does the Brazilian Government have the consistent policy for the Biologicals Production Project to continue its activities of measles/poliomyelitis vaccine production after the Japanese cooperation?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

27. Does the Brazilian Government have the consistent policy for the administration of FIOCRUZ to continue its activities of measles/poliomyelitis vaccine production after the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

28. Does the measles/poliomyelitis vaccine production Project have enough resources to continue its activities?

a) measles

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

☐Equipments/machines(please specify:)
☐Spare parts(please specify:)
☐Materials(please specify:)
☐Facilities(please specify:)
☐Operation system(please specify:)
☐Staff(please specify:)
☐Budget(please specify:)
☐Others (please specify:)

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

☐Equipments/machines(please specify:)
☐Spare parts(please specify:)
☐Materials(please specify:)
☐Facilities(please specify:)
☐Operation system(please specify:)
☐Staff(please specify:)
☐Budget(please specify:)
☐Others (please specify:)

29. Have the equipments/machines/spare parts for the Project been sufficiently provided after the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

30. Have the equipments/machines/spare parts for the Project been adequately maintained after the Japanese cooperation?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

31. Do you think that this measles/poliomyelitis vaccine production Project will make enough benefit to adopt self-supporting system?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

32. Do you think that this poliomyelitis vaccine production Project will develop into consistent national production plant without import of foreign vulks?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

33. Do you have an internal training system in FIOCRUZ to transfer the technology for biologicals production among staffs?

☐Yes ☐No ☐No comment

Please explain:

---

34. How do you think the capacity of FIOCRUZ to maintain and improve the equipments/machines?

Please explain

---

35 Do you think that counterparts for the Japanese cooperation have mastered enough technology to maintain the activities of this Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

36. Do you think that counterparts continue to work for this Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

37. Please let us know the mechanism of making an annual budget plan?

---

38. Do you have any opinion to establish self-sustaining system of this Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

[RELEVANCE]

This section is concerned with the relevance of the Project: i.e. whether the objectives of the Project are pertinent and worthwhile.

39. Have there been any major policy changes relating to the national vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

40. Is the purpose of the project, to establish self-producing system of measles/poliomyelitis vaccines on a large scale, still relevant to the current needs of your country?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

41. Do you think that the detailed plan of technology transfer and cooperation were adequately made after the enough discussion between Japanese parts and Brazilian parts?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

42. Do you think that Japanese technology transfer and cooperation were made opportunely during the Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

43. Any other comment:

(Thank you for your cooperation)

THE JOINT EVALUATION STUDY ON THE JAPANESE TECHNICAL COOPERATION PROJECTS IN BRAZIL

BIOLOGICALS PRODUCTION PROJECT

INTERVIEW SHEET TO PROFESSIONALS

JAPAN INTERNATIONAL COOPERATION AGENCY
SEPTEMBER, 1993

BACKGROUND OF RESPONDENT

Name: _____

Designation: _____

Division: _____

Organization: _____

Date: _____

Following are the question on the Biologicals Production Project. This survey is being conducted by the Brazilian Government and the Japanese Government in order to make a post evaluation on the Brazil-Japan Technical Cooperation Project(1980-1985).

We would like to have an interview on this sheet.

Kindly please tick (v) the most appropriate answer or write down your comments. Your cooperation would be highly appreciated and your cooperation would be fully confidential and used exclusively for this survey.

[EFFECTIVENESS]
This section is concerned with the effectiveness of the Project: i.e. the extent whereby the objectives of the Project are successful.

1. Do you think that Japanese cooperation for the Biologicals Production Project has succeeded to supply measles/poliomyelitis vaccines on a large scale?

a) measles
☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

2. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to strengthen the ability of quality control of the measles/poliomyelitis vaccine production?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

3. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to implement the National Vaccination Programme?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

4. Do you think that technology transfer from Japanese experts to Brazilian counterparts were carried out successfully?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

[IMPACT]

This section is concerned with the impact of the Project: i.e. direct or indirect, positive or negative.

5. Do you think that the Japanese cooperation for Biologicals Production Project contributed to the improvement of the technology of other kind vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No', please explain:

---

6. Have the vaccines supplied by this Project contributed to the improvement of preventive measures against measles/poliomyelitis?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

7. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to reduce the foreign financial burden of Brazil?

☐Yes ☐No ☐No comment

If 'Yes' or 'No', please explain:

---

8. Have the measles/poliomyelitis vaccines supplied by this Biologicals Production Project been distributed all over the country to meet the demand in Brazil?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

9. Do you think that Japanese cooperation for the Biologicals Production Project has contributed to the improvement of vaccination system in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

10. Do you think that Japanese international contribution to the Biologicals Production is broadly recognized in Brazil?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

11. Have you had any environmental impacts from the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

12. Have you had any other negative impacts from the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

13. Regarding the improvement of preventive measures for measles/poliomyelitis, did you notice unexpected impacts from the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

14. Were there any other social/economical contribution by the Japanese cooperation for the Biologicals Production Project?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

[SUSTAINABILITY]

This section is concerned with the sustainability of the Project: i.e. the extent of the Biologicals Production Project impact after the assistance was completed.

15. Does the Brazilian Government have the consistent policy for the Biologicals Production Project to continue its activities of measles/poliomyelitis vaccine production after the Japanese cooperation?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

16. Does the measles/poliomyelitis vaccine production Project have enough resources to continue its activities?

a) measles

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

☐Equipments/machines(please specify:)
☐Spare parts(please specify:)
☐Materials(please specify:)
☐Facilities(please specify:)
☐Operation system(please specify:)
☐Staff(please specify:)
☐Budget(please specify:)
☐Others (please specify:)

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please specify which one of the following items is not sufficient:

☐Equipments/machines(please specify:)
☐Spare parts(please specify:)
☐Materials(please specify:)
☐Facilities(please specify:)
☐Operation system(please specify:)
☐Staff(please specify:)
☐Budget(please specify:)
☐Others (please specify:)

17. Do you think that this measles/poliomyelitis vaccine production Project will make enough benefit to adopt self-supporting system?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

18. Do you think that this poliomyelitis vaccine production Project will develop into consistent national production plant without import of foreign vulks?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

19. Do you think that FIOCRUZ Foundation have an enough ability to adopt internal training system to transfer the technology for biologicals production among staffs?

☐Yes ☐No ☐No comment

Please explain:

---

20 Do you think that counterparts for the Japanese cooperation have mastered enough technology to maintain the activities of this Project?

☐Yes ☐No

If 'No', please explain:

---

21. Do you have any opinion to establish self-sustaining system of this Project?

☐Yes ☐No

If 'Yes', please explain:

[RELEVANCE]

This section is concerned with the relevance of the Project: i.e. whether the objectives of the Project are pertinent and worthwhile.

22. Have there been any major policy changes relating to the national vaccine production in Brazil?

☐Yes ☐No ☐No comment

If 'Yes', please explain:

---

23. Is the purpose of the project, to establish self-producing system of measles/poliomyelitis vaccines on a large scale, still relevant to the current needs of your country?

a) measles

☐Yes ☐No ☐No comment

If 'No', please explain:

---

b) poliomyelitis

☐Yes ☐No ☐No comment

If 'No', please explain:

---

24. Do you think that Japanese technology transfer and cooperation were made opportunely during the Project?

☐Yes ☐No ☐No comment

If 'No', please explain:

---

25. Any other comment:

(Thank you for your cooperation)